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TETANY.[1]

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Very few observations have been published in America on the extremely interesting disease commonly known as tetany. Drs. Henry Hun, of Albany; Carpenter, of Pottsville; Lyman, of Chicago; and J. Lewis Smith, of New York, have each reported one or more cases. It has been my fortune to have observed a large number of cases in Vienna during the winter of 1883 and 1884, and to have had under observation during the past three years a case which presents many points of exceptional interest. I will first give a brief description of the clinical course of this case.

The patient is a male, aged thirty-nine. His complaints when he first came under observation were *diarrhœa* and "spasms of the face, arms, and legs." He has been troubled with diarrhœa for ten years, and with spasms of an intermittent character for the past eight years. During the late American civil war he served as a private soldier in a number of the Virginia campaigns. During this period he had several attacks of malarial fever, and for a period of eighteen months he suffered from a mild form of chronic diarrhœa. He never had either syphilis or rheumatism, and never drank to excess. The family history is unimportant.

The patient is tall, emaciated, and anæmic, with an anxious, careworn expression. For the past eight years he has been troubled with the attacks of tetany. Usually the first subjective symptom of their appearance is double vision. Then the thumbs become strongly adducted and

[1] Read before the Association of American Physicians, Washington, Sept. 18, 1889.

opposed, while the fingers are adducted and semiflexed. These contractions gradually increase in severity day by day up to about the tenth day, when they somewhat suddenly begin to decline, and the parts become normal twenty-four hours after.

When the attacks are what he calls severe, the adductors of the upper arm become involved, bringing the arms crossed in front of the chest, with the forearms semiflexed. For some hours before and during the whole period of tetany he has a disagreeable feeling of numbness in his fingers. The dorsum of the hands swell and they are extremely painful. The pain is especially severe when an attempt is made to straighten the contracted muscles. The muscles of the face are also frequently the seat of contractions, the upper lip being usually drawn to the left and upward, and the lower to the right and downward. The facial muscles are also the seat, during the period of tetany, of fibrillary twitchings. The muscular contractions only occasionally affect the muscles of the lower extremities. When affected, the feet and toes are in a state of plantar flexion, the feet being turned inward and the thighs adducted.

The galvanic irritability of the nerves is found to be greatly exaggerated during the period of tetany. The following may be taken as an average result:

	Normal period.	Tetany period.
Facial	3.00 m. a.	0.25 m. a.
Radial	5.00 "	1.00 "
Median	4.25 "	0.50 "
Ulnar	3.50 "	0.50 "

During the period of tetany usually galvanization of either facial produced lively contractions on closing the kathode with a measurement of not more than 0.25 of m. a., while after the attack passed away it was necessary to employ 3 m. a. to induce a similar contraction. An anode opening tetanus is readily induced by a strength usually not exceeding 3 m. a. A strength of current necessary to induce a contraction during the quiescent period was sufficient in the tetany period to cause a distinct tetanic contraction. There were never noticed any signs of the reaction of degeneration, the KSZ. being always found more marked than the AOZ.

The difference between the reaction to faradization of the muscles during the normal and tetany periods is not very marked. In fact, the interossei require a much stronger current to induce their contraction during their tetany state than after it has passed away. This is no doubt owing to the œdematous tissues increasing the resistance. The mechanical irritability of the muscles when in a state of tetany is greatly exaggerated. The same holds true of the nerves innervating the affected muscles. Pressure on the vessels does not appear to increase the intensity of the muscular contractions. The muscles, although flabby, are in a fairly nourished condition.

During the period of tetany, the knee-jerk is greatly exaggerated, but after it has passed it is always difficult, and at times impossible, to induce contraction of either quadriceps, when the patellar tendons are percussed. The same holds true of the biceps and triceps reflexes. There is nothing definite to be made out in regard to any of the superficial reflexes.

Vasomotor phenomena are frequently noticed. Mention has already

been made of the swelling of the back of the hands. Herpetic eruptions on the fingers are occasionally seen also.

The tongue is constantly found in a raw-looking state.

During the intervals of freedom from the attacks, he suffers from diarrhœa, which moderates when the tetany makes its appearance. The stools are copious, semi-fluid, frothy, and look like pea-soup. The abdomen is usually distended. During the attacks, the urine has a high specific gravity from an excess of urea. It contains also a great excess of indican. It is free, however, from both albumin and sugar. Jaundice frequently is present; there is no other evidence, however, of disease of the liver.

The spleen is normal in size. An examination of the blood reveals nothing abnormal. No evidence of any thoracic disease.

About one year after this patient came under observation, the following additional symptoms were noticed:

A complaint, not only during the attacks, but also in the intervals, of general numbness. There is noticed a difficulty in speech. He is able to articulate well, but on attempting to answer a question, it takes him some time to do so, and when he begins to speak, especially if any thinking is necessary, the speech is slow. The œdema, which was formerly confined to the back of the hands, is now more or less general, but is especially marked in the face. There is no pitting of the tissues, however. There is no trace of the thyroid gland. The anæmia has also increased in intensity.

These symptoms resemble closely those of myxœdema. Against that assumption we have the fact that there has been no progress whatever during the past two years, and this is hardly compatible with what is known to be the clinical course of myxœdema. At one time it appeared as if we were going to have a myxœdema engrafted on a tetany.

The case is undoubtedly one of tetany, but whether we have in addition myxœdema, or not, time alone will tell.

Steinheim, in 1830, was the first to give a true clinical description of tetany. Corvisart, in 1852, was the first to propose the name by which it is now universally known. It is, however, mainly to the observations of Trousseau, Erb, N. Weiss, and others that we have been made acquainted with many of the more important features of this remarkable disease.

There are three distinct forms of this disease—forms which differ, in the causes that give them origin, in their course, and in their prognosis, but little in the clinical pictures which they present. By far the most common variety of this disease is what is known as rheumatic or epidemic tetany. On the continent of Europe, especially in Paris and Vienna, distinct epidemics occur. In Vienna hardly a winter passes without such an occurrence. In the winters of 1883 and 1884 a very severe epidemic occurred in the latter city.

The course of the disease when it occurs as an epidemic, is acute—

usually not lasting over two or three weeks—fatal cases being very exceptional. Extensive epidemics occurred in Paris in the years 1855 and 1876. In England and America no epidemics of this disease have been described.

A second variety of tetany, which is more chronic, is due to either chronic diarrhœa, prolonged lactation, or other debilitating influences. Except in being more chronic, this form differs but little from the epidemic variety. Recovery nearly always occurs. A third form of tetany follows the removal of enlarged thyroid glands. A very considerable number of cases of tetany following this operation are now on record. Up to May, 1883, Billroth performed 78 operations for the removal of enlarged thyroids, and in 13 tetany followed in the course of a few days; 6 of these 13 cases proved fatal. Two of the fatal cases ran a course of upward of one year, while the remaining four terminated within two weeks.

There is a very marked difference between the course of tetany following extirpation of the thyroid and that due to debilitating and epidemic influences. The former is a much severer type, being frequently fatal, while the latter is seldom or never fatal. A fourth variety of tetany is also distinguished by its fatal tendency. I refer to that which occurs in cases of dilatation of the stomach. Kussmaul, Gerhardt, Dujardin-Beaumetz, Müller, and others, have reported such cases. Müller has collected eight cases of tetany occurring during the course of dilatation of the stomach, with a mortality of sixty-six per cent. Judging from these statistics, tetany due to this cause is even more fatal than that arising from removal of the thyroid gland. I have purposely excluded the consideration of what is commonly called infantile tetany, as it appears to me that true tetany is an exceptionally rare disease in infancy. If we are to include, as many observers do, all cases of carpo-pedal contractions under the name of tetany, the disease is much more frequent among children than adults. Clinically there is a marked difference, however, between the carpo-pedal contractions so frequently seen in conjunction with laryngismus, and tetany.

1. The tetany of adult life is essentially an intermittent disease, while in the so-called tetany of infant life the contractions are permanent until recovery takes place. They may be more intense at one time than another, but they never completely disappear.

2. The carpo-pedal contractions of infancy appear in a very considerable number of cases to be due to cerebral causes, as eclampsia is a very frequent complication. There is no doubt that true cases of tetany do occur in childhood; what I wish to lay stress on is, that they are very rare, and that it is an error to say that every case in which we have carpo-pedal contractions is a case of tetany.

Experimental Tetany in Animals.

When the thyroid gland is removed from cats and dogs, a series of symptoms set in in a few days, to which the name of experimental tetany has been applied. The first symptom usually noticed is a peculiar appearance of the eyes, due to a pushing forward of the membrana nictitans on the inner and under surface of the bulb, from tetanic contraction of the internal eye muscles. Simultaneous with this contraction of the eye muscles, there appear fibrillary tremors of the muscles of the extremities and face, and occasionally of the tongue. In some cases these tremors are so marked that it is impossible for the animal to stand erect, at other times they are so weak that it is with difficulty that they can be perceived. In addition to the fibrillary tremors, there is tetanic contraction of the muscles of the extremities. The muscular phenomena described alternate with periods when the animal remains quiet. The respirations are frequent and superficial. The temperature is not increased.

In most animals, after the eighth day, a suppurative catarrh of the conjunctiva sets in, which finally leads to implication of the cornea and its perforation. The death of the animal soon follows, either suddenly from tetanic contraction of the glottis or diaphragm, or more slowly from exhaustion.

In a very large number of thyroid removals in dogs, Fuhr was unable to find any constant changes in the internal organs. Neither the brain nor spinal cord presented any marked changes. The tissues in the neighborhood of the thyroid gland were carefully examined and were found normal.

Exceptionally, a dog may live after complete removal of the thyroid gland. Rabbits, on the other hand, usually recover from the operation, although liable to be affected by the muscular contractions. Man appears to stand midway between these two classes of animals, so far as his power of withstanding the removal of the thyroid is concerned.

The symptoms detailed as following the removal of the thyroid in the lower animals, bear a striking resemblance to tetany as it appears in man; that they are essentially the same disease is extremely probable. A valuable proof of their identity has been pointed out by Schwartz. In all his cases—six in number—he found that both the galvanic and faradic reactions were greatly increased. The reaction of the peroneal nerve to galvanism was so marked that he often found muscular contraction induced by a strength of current not measurable by our ordinary clinical galvanometers; AOTe. and KsTe. were readily brought out by a very weak current.

Of the many different forms of cramps that affect the muscles in man, tetany is the only one in which there is a marked increase in the electric

irritability of the nerves, with the possible exception of Asiatic cholera. Its presence, then, is of great diagnostic importance, and leaves little room for doubt that the muscular contractions which follow the removal of the thyroid in animals are of the same nature as those which follow a similar operation in man, and also similar to the same disease that occurs epidemically, and from the other causes already mentioned.

The Morbid Anatomy of Tetany.—In the few cases where a histological examination of the nervous structures has been obtained after death, no lesion to account for the symptoms present during life could be discovered.

The slight changes described by Weiss as having been found by him in the cervical cord, are considered by all later observers as negative, a few swollen ganglion cells being the only abnormality described by this observer. Langhans found a periarteritis and periphlebitis in the white commissure and anterior horns of the cervical and lumbar enlargements in a woman who died at the age of forty-eight, after having suffered for some time from tetany. Similar vessel-changes are, however, not infrequent at this age, and, therefore, cannot be taken as in any way distinctive of tetany. Schultze and Beyer have each had in several cases opportunities for making a thorough examination after death of the central and peripheral nervous system, and with negative results in every case.

We may therefore conclude that, as far as we know at present, there are no anatomical lesions in cases of tetany. The same is true of the tetany induced in animals by removal of the thyroid gland. Judging from the clinical course of the disease, these negative results are what we would naturally expect.

Before discussing the probable nature of the disease, it will be in place to glance at the present expressed opinions as to the cause of the experimental tetany of animals after removal of the thyroid glands. With but very few exceptions, every recent experimenter in this field has arrived at the conclusion that the tetany is directly brought about by the removal of the gland itself, and that it has nothing whatever to do with injury of the nerves in the neighborhood. The very recent experiments of Fuhr, Weil, and Schultze establish this, I think, beyond doubt. An interesting experiment performed by Fuhr shows that simple irritation itself does not bring about any of the symptoms of tetany. He injected a hypodermatic syringeful of a 10 per cent. solution of nitrate of silver between the gland and its capsule; severe and extensive inflammation of the gland and neighboring structures followed, but at no time were there present any fibrillary tremors, muscular contractions, or other symptoms indicative of tetany.

It is a well-established fact that the removal of one gland does not bring about tetany, but if, after the wound is completely healed, the remaining gland is removed, the symptoms of tetany quickly develop,

and we then have the usual lethal course as seen when the two glands are removed at the same time.

Weil has also shown that if a portion of each gland is removed the result is negative, while the usual symptoms quickly make their appearance when the glands are completely removed.

I think there can be no other conclusion after the consideration of the above facts, than that the cause of tetany in animals is due directly to the removal of the thyroid glands. And no other conclusion is tenable in regard to the tetany which follows extirpation of the thyroid in man.

As the removal of the thyroid glands, both in man and animals, brings about a certain train of nervous symptoms, it follows that these glands have some important relations to the nutrition of the nervous system: whether this function consists in the removal from the blood of matters which would be injurious to the nervous system if allowed to circulate, it is difficult to determine. Experiments performed by Ewald, of Strassbourg, lend great probability to this view. He injected a number of dogs with the freshly expressed juice from the thyroid glands of healthy dogs, and invariably found that the animals became soporose and cataleptic.

To explain how causes, seemingly so diverse in their operation, as rheumatic influences, diarrhœa, pregnancy, lactation, and removal of the thyroid glands, can induce similar symptoms is very difficult. The active cause in the case reported is, no doubt, in some way due to the diarrhœa; but is the disease induced through impoverishment of the nerve centres, or through the peripheral irritation, or from the absorption of putrid products?

It appears reasonable to conclude that in all cases of tetany we have to do essentially with an unstable condition of the nervous system, a condition which readily reacts to slight peripheral influences. In the great majority of cases the disease is connected with some directly debilitating cause.

No doubt peripheral irritation is an active factor in a considerable proportion of cases. Müller reports two cases of tetany occurring in simple dilatation of the stomach, and where, after death, this organ was found to be twisted on its axis.

I am unable to advance any facts as lending probability to the view that tetany is brought about by the absorption of the products of putrid decomposition.

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ON THE USE OF ANTIPYRIN IN MALARIAL FEVERS.

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The antithermic properties of antipyrin have now been recognized for such a long period of time that it may seem superfluous at this date to call attention to them, and yet there is a class of cases to its use in which attention has been little directed, and in which I believe it has not hitherto been much employed. In this drug, however, we possess a remedy which, in my experience, is absolutely certain to cut short the duration of a paroxysm of malarial fever, and, when used in combination with quinine, shortens the whole attack. (When I use the word certain, I must point out that I refer to an attack of pure malarial fever, no matter how severe; that is to say, an attack uncomplicated by any other distinct disease, such as hepatitis, enteritis, etc. In such cases antipyrin will not give the same results.)

Diaphoretics, from the simple infusion of some garden herb, culled from a native's garden, or the good, old-fashioned mixture of liq. ammoniæ acetatis and sp. ætheris nitrosi, to the more active remedies, jaborandi or Warburg's tincture, have each found their advocates, and have been more or less successful. But to each of them there is the objection that, however successful they may be in the majority of cases, yet every now and then we meet with some case which baffles all our efforts, where the temperature remains persistently high, and where no drug seems to possess the power of producing diaphoresis and of diminishing the pyrexia. It is in such cases as these, as well as the simpler forms, that antipyrin is specially valuable.

One of its most striking effects when administered during the hot stage is the almost immediate feeling of relief which it affords to the patient. All those who have suffered from an attack of intermittent or remittent fever can recall the intense throbbing headache, the constant feeling of oppression, and the aches and pains in the loins and limbs which render any one position impossible for any length of time. Here the anodyne properties of the drug come into action, and, if they do not completely relieve these distressing symptoms, at least lessen them. As a result of this, the patient becomes drowsy, and after the second dose usually falls into a sound, refreshing sleep. At the same time the skin begins to feel moist, and this increases until the patient is drenched in perspiration. The temperature steadily falls, and in most cases does so until it is subnormal. The fall of temperature begins almost immediately, and the rapidity with which it sinks varies with the individual case and probably with the stage of the attack at which it is administered. In Case IV., for example, the temperature was subnormal four hours after the administration of fifteen grains only, while in Case V., with much larger doses, it took seven hours to fall from 103.8° to 99.4°. The duration of the intermission is from twelve to eighteen hours; but this probably depends upon the action of the quinine which I always prescribe *after* the antipyrin, and which intensifies the action of the latter drug, as the diaphoresis becomes more marked and the decline in temperature more rapid after its use.

Quinine alone will not do this, especially if the temperature is over 100°, and is still rising. In many such cases it is practically useless, and, in fact, seems to have an irritating effect rather than otherwise. It is when the temperature has *begun* to fall, and during the intermission, that quinine is invaluable. The combined use of these two drugs has given such satisfactory results that I have not tried antipyrin alone, except in one case, a native, where certainly cure eventually took place, although the duration of the attack was considerably longer. When we remember that antipyrin belongs to the same group of chemical substances as quinine, it would almost seem from this that it has some specific action on the malarial poison, although, of course, one case is far from conclusive.

The action of antipyrin on the pulse is variable. It generally slows and steadies it and increases its tension, while at times it has little effect.

Antipyrin is well retained by the stomach, an advantage, and by no means an unimportant one, which it has over other diaphoretics, especially in countries like the Gold Coast, where gastro-hepatic disturbances are an almost invariable concomitant of malarial attacks, and where vomiting frequently constitutes one of the difficulties of treatment.

Macalister,[1] in summing up the effects of antipyrin, states that it in-

[1] Abstract of Croonian Lectures on Antipyretics. Lancet, July 14, 1888.

creased skin radiation, diminished the difference between peripheral and central temperature, lowered the temperature as a whole, diminished thermogenesis, diminished the production of nitrogenous waste and, therefore, nitrogenous metabolism, and frequently, but not always, increased perspiration, while it generally slowed the heart and slightly increased the tension of the radial artery. In malarial fevers, however, the effect on perspiration is much more marked, and this, in addition to its thermolytic and thermogenetic properties, may afford an explanation of its action. Taking for granted that this class of fevers is due to a microörganism (Laveran, Marchiafava, Celli, and others), we must attribute the rise of temperature to the effects of the morbid products derived either directly from the microörganism, or from its destructive action on the red blood-corpuscles. That malaria is a disease of which the essential characteristic is a destruction of the red blood-corpuscles, is now well established; and it has recently been shown by Drs. Bristowe and Copeman[1] in a series of experimental observations on a case of paroxysmal hæmoglobinuria, that the destruction of blood corpuscles is itself sufficient to cause a rise of temperature; consequently, when we eliminate these morbid products as rapidly as possible through the sweat glands we diminish the pyrexia. This result being achieved, quinine, which is a specific poison to the malarial organism, now steps in and prevents its further development.

Probably the same explanation can be given of the well-known beneficial effects of full doses of calomel in malarial fevers, apart from the fact that quinine forms an insoluble salt with the bile,[2] and hence will not act until the latter is removed. The seat of blood destruction in health, and of the removal of the products of this, is the portal circulation.[3] In malaria, however, the excessive blood destruction throws such a strain upon the liver that it is unable to act, and gastro-hepatic disturbances ensue. Calomel, by removing the accumulated bile, allows the liver cells to set to work on the morbid products circulating in the blood, and thus acts indirectly on the temperature.

With reference to the manner of administering antipyrin, I find that large doses are most satisfactory, and they have never in my experience been followed by bad results. Thirty grains should be given at once, and repeated in an hour or an hour and a half, and a further dose of fifteen grains may be given if required. During the intermission quinine should be given freely.

The following five cases of fever occurring in Europeans, will serve to illustrate the action of antipyrin:

[1] Lancet, August 14, 1889.

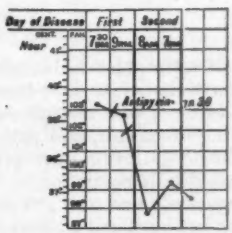
[2] Lauder Brunton: Pharmacy and Therapeutics.

[3] Hunter: An Investigation into the Pathology of Pernicious Anæmia. Lancet, October 6, 1889.

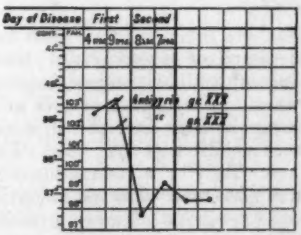
Case I.—Patient A. B. had just returned to the coast from a six months' expedition to the interior, during which he had had an attack of fever. When I saw him at half-past seven in the evening his temperature was 103.2°. Face flushed; tongue very foul. Bowels had been moved during the day by a dose of some effervescent saline. There was slight tenderness over the spleen, but none over the liver; skin hot and dry; great headache, and pains in muscles of back and legs. Thirty grains of antipyrin were taken at 8.30 P.M. 9 P.M.: Temperature 102.8°; skin beginning to feel moist; headache lessened and patient sleepy. Ordered thirty grains at 9.30 P.M., and at 10 P.M. quinine gr. xv, with a pill composed of pil. hydrarg., pil. col. et hy., āā gr. vj.

Second day. An effervescent saline was given at 6 A.M., and when I saw him at 8 A.M. his bowels had been freely moved; temperature 97.8°; headache had disappeared, and patient felt better generally. Quinine gr. xv had been given at 6 A.M., and ten grains were ordered to be taken at 9 A.M., 12 M., and 4 P.M. At 7 P.M. there was only slight tendency to return of the fever, the temperature being 99.3°. Ten grains of quinine were given at 9 P.M. After this there was no return of the fever, two or three days' course of tonic treatment being all that was required to complete recovery.

Case I.



Case II.



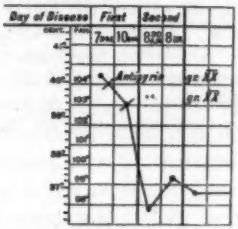
Case II.—This case is very similar to the first one. Patient C. D. had been up in the interior for two and a half months, and had just returned to the coast. He had been complaining of a constant feeling of nausea for some days previous to the attack, pointing to some gastric disturbance with hepatic inactivity, a very common antecedent to fever on the Gold Coast. When I saw him at 4 P.M. the temperature was 102.8°. There were great feeling of discomfort, great headache, and pains in the loins and legs; tongue very foul. 9 P.M., temperature 103.2°. The medicines which I had ordered only arrived. Gave antipyrin gr. xxx, to be repeated in an hour, and afterward quinine gr. xv, along with pil. hydrarg. and pil. col. et hydrarg., āā gr. vj.

Second day. 8 A.M., patient said he slept well after the medicine, and the headache and pains disappeared. Bowels freely moved. Quinine gr. x at 8 A.M., 12 M., and 4 and 7 P.M. At 7 P.M. the temperature is 99.2°, showing a tendency toward return of fever, but otherwise patient is all right. Another ten grains of quinine to be taken. From this date there was no return of the fever.

Case III.—Patient E. F. had had a very slight attack of fever a few

days previously, from which he had recovered, but having had the imprudence to go on duty (contrary to orders) in the afternoon, during which he was exposed to the sun, a second and severe attack was the result. Exposure to the sun is not unfrequently followed by an attack of true malarial fever, and the explanation is probably to be found in the fact that the vitality of the system is lowered, and as a result the malarial organism, which has hitherto remained dormant, is able to act upon the weakened body. In a region like the Gold Coast, where one is constantly exposed to the malarial poison, and where the system may be supposed to be saturated with it, any lowering of vitality, from whatever cause it may arise—exposure, excessive use of alcohol, etc.—is liable to be followed

CASE III.



by an attack of fever. 7 P.M., temperature 104.4°; pulse is bounding and incompressible; tongue is covered with a thick white fur; breath offensive; has been to stool once or twice to-day. There is tenderness both over the liver and spleen; constant feeling of nausea, and patient has been vomiting at intervals. Twenty grains of antipyrin were given at 8 P.M. At 10 P.M., temperature is 103°, and skin is beginning to feel moist. The same dose of antipyrin was repeated, and six grains of calomel were given. Twenty grains of quinine were ordered to be taken in an hour.

Second day. 8.30 A.M.: Patient slept well, and awoke during the night bathed in perspiration. The temperature is now 97.9°. Bowels have been moved freely. There is still a slight feeling of nausea. Ten grains of quinine were given at once, and at 10 A.M., 1, 6, and 9 P.M. 8 P.M., temperature 99.4°.

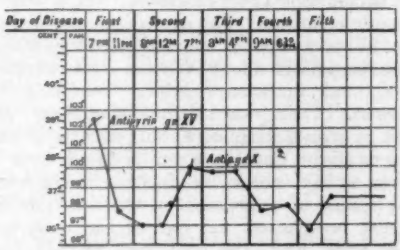
Third day. Temperature 98.7°. Patient is feeling better, but weak. From this date there was no return of fever, and tonic treatment was prescribed.

CASE IV.—Patient G. H. was a man with marked alcoholic tendencies, and the present attack I attributed to alcoholic excess two days previously. When I saw him at seven in the evening his temperature was 102.5°; his skin was hot but moist; there was considerable headache; tongue was foul and tremulous, and there was a disagreeable taste in the mouth; there was a constant tendency to vomit; tenderness over liver and spleen; pulse fast and weak. Ordered fifteen grains of antipyrin at once, and ten grains of quinine to be taken at 8 P.M. 11 P.M.: Patient has slept since my visit. Skin feels cool and moist; has been sweating freely; temperature 97.8°; headache has quite gone. There is no tendency to vomiting, but he says he had great difficulty in retaining

the antipyrin. Pulse slow and full. Gave pil. hydrarg., pil. col. et hydrarg., āā gr. vj, and ordered twenty grains of quinine an hour later.

Second day. Temperature 97°. Patient says he had a good night; has been to stool twice. Quinine gr. x at 6 and 8 A.M., and again at 1 P.M. 12 M.: Temperature 97°; pulse 90, full and compressible. 7 P.M.: Temperature 100°; pulse 102; pain over liver and spleen more marked than yesterday; tongue extremely furred; skin hot and dry. Gave ten grains antipyrin at once, and fifteen grains quinine at night. Left a sleeping draught of pot. brom. and chloral, to be taken if necessary.

CASE IV.



Third day. 8. A.M.: Patient did not sleep well; vomited the sleeping draught. Temperature 99.9°; pulse 94. Tongue very foul; the tenderness over liver and spleen continues. Quinine gr. x at 10 A.M., 1 and 4 P.M. 4 P.M.: The temperature remains the same, but patient says he is feeling better. Pulse 96; moderately full. Tongue clearing at edges. Quinine gr. x at 7 P.M., and gr. xv at 10 P.M. Pil. hydrarg. gr. iv. at 10. A sleeping draught if necessary.

Fourth day. 9 A.M.: Temperature 97.8°. Patient took sleeping draught and had a good night. Ten grains given at once and fifteen at 1.30 P.M. 6.30 P.M.: Temperature 98°. Has been twice to stool; tongue slightly furred; feels very weak. Quinine gr. xv at night.

Fifth day. Temperature 96.8°. Patient feeling better. The quinine was continued in smaller doses, and a mixture of arsenic, cinchona, and nux vomica prescribed.

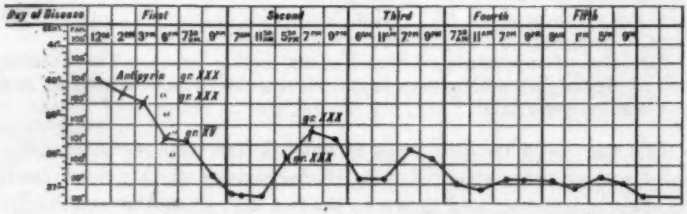
This was one of the first cases in which I had recourse to the drug, and I was somewhat chary of using the large doses which I used later. Its effect is, however, well shown on the first day, where the temperature fell from 102.5° to subnormal in four hours, and continued thus until noon on the following day. The return of the fever I think was due to my not having given sufficient quinine during the intermission, and perhaps also to the disordered state of the liver. The temperature fell at once after a second dose of blue-pill.

This was the only one of these five cases in which I had an opportunity of examining the blood microscopically, and it may be interesting to mention that I recognized several of the large pigmented bodies which Laveran describes in his *Traité des fièvres Palustres* but I was unable to

satisfy myself of the presence of the crescentic bodies or of the "filament motiles." The red blood-corpuscles varied considerably in size, became very quickly crenated, and assumed irregular shapes very readily on *pressure*. Occasionally a distinctly nucleated red corpuscle could be seen.

Case V.—Patient I. K. had passed the last two months moving about in the interior, during which time he had gone through a good deal of fatiguing work, and occasionally had been much exposed to the sun. When returning from this expedition he had suffered from a severe attack of fever accompanied by diarrhœa, which left him in a very reduced and anæmic condition. The exciting cause of the present attack was said to be a chill met with on board the steamer while coming along the coast. I saw the patient about 12 noon. His temperature was then 104.2°; pulse 100, weak, and compressible. Tongue yellow and furred, but not markedly so. There was a feeling of nausea. Bowels had been freely opened by a strong purgative, but patient is habitually constipated. There was slight uneasiness on pressure over liver, but none over spleen. Skin moist; intense headache. There was a great feeling of weakness and a sense of oppression on the chest; in fact, throughout the illness the great prostration was one of the most marked features. I ordered a hot drink until the medicines arrived from the hospital. About 2 P.M. thirty grains of antipyrin were given, the temperature then being 103.8°, but the other conditions remaining the same. There was a little tendency to weakness about this time. At 3 o'clock the temperature had fallen to 103°, and patient was feeling better and inclined to sleep. I repeated the antipyrin. At 6 the temperature had fallen to 101.4°. Pulse 82; fuller than before. Patient had been sweating freely. At 6 fifteen grains of antipyrin were given, and at 7.30 ten grains of

Case V.



quinine. At 9 o'clock the temperature was 99.4°. Gave pil. hydrarg., pil. col. et hydrarg., āā gr. v, and repeated ten grains of quinine. Also left a sleeping draught of pot. brom. and chloral, as patient had passed some very bad nights previously. During the day champagne was administered freely, and liquid food in the form of Liebig's extract of beef, with beef, peptonoid powder, etc., was taken.

Second day. 7 A.M.: Temperature 98.8°. Slept well, patient feeling better generally. 11.30 A.M.: Still no fever. Temperature 98.6°; pulse 62. Ten grains quinine given at 8 A.M. and 12 M. 5.30 P.M.: Slight return of fever. Temperature 100.4°; pulse 86; somewhat bounding.

Complained of aches and pains. Gave thirty grains of antipyrin. 7.15 P.M.: Temperature has risen to 101.8°. Patient feels very weak and despondent, and complains of difficulty of breathing and a tendency to take long breaths. Repeated antipyrin, thirty grains. 9.15 P.M.: Temperature has begun to fall and is now 101.2°; pulse lower. Has been sweating freely. Gave fifteen grains quinine and sleeping draught, if necessary. Dietetic treatment of a stimulant character, as above.

Third day. 6 A.M.: Temperature 99.2°, at which it remained until 11, when it began to rise, attaining its maximum (100.7°) at 7 o'clock. Sixty grains of quinine were given throughout the day, and as the tongue still remained yellow and furred eight grains of calomel were prescribed.

Fourth day. Bowels freely moved. Temperature 99° in the morning, and remained low all day, only rising to 99.4° in the evening. Fifty grains of quinine given throughout the day.

Fifth day. Temperature remains about 99°. Patient improving, but the weakness remains. Forty grains of quinine given. After this, patient had no recurrence of fever, but remained in a low anæmic state, which did not yield to tonic treatment, and a sea-voyage was recommended, during the course of which his health improved rapidly.

The severity of this attack is evident, and brings it under the head of bilious remittent fevers, although there was a complete intermission on the second day, but this must be attributed to the antipyrin. The rise of temperature on the same day, *after* the administration of thirty grains of quinine, is interesting, and is the only instance I have met with, and I believe would not have occurred had I given larger doses of quinine during the intermission. The utility of calomel was well illustrated on the fourth day, where a second dose the previous evening caused a marked amelioration of all the symptoms.

THE EFFUSION OF CHYLE AND OF CHYLE-LIKE, MILKY, FATTY, AND OILY FLUIDS INTO THE SEROUS CAVITIES.[1]

By Samuel C. Busey, M.D., LL.D.,
of Washington, D. C.

The object of this paper is to present the subject of effusion of chyle, chyle-like and fatty fluids into the serous cavities. It will be limited to the consideration of the effusion of such fluids into the cavities of the pleuræ, peritoneum, and tunica vaginalis.

Traumatic injuries of the absorbent vessels seem to have been a subject peculiarly attractive to many of the older authors. Ruysch, as early as 1665, drew attention to wounds of the lymphatic vessels, and refers to a certain surgeon "who had, unfortunately, cut a lymphatic

[1] Read before the Association of American Physicians, Washington, September, 1889.

vessel in incising a venereal bubo not completely developed, from which flowed daily a great quantity of lymph." Solingen, in 1693, reported two cases of "lymph fistulæ situated at the head of the soleus muscle, one consequent upon a wound, the other produced by contortion of the limb." Muys, in 1695, saw a young man who had been wounded in the left external malleolus, and from the wound "there flowed every day a vast quantity of water." Nuck, in 1733, wrote of wounds of the lymphatic vessels. "Very often," he says, "in venesection performed on the arm, and especially when performed on the foot, the absorbent vessels are injured; by carelessness in regard to these vessels the lancet has proved fatal." Van Swieten, in 1764, recorded the observation that frequently most abundant discharges of lymph followed venesection; and Haller, a few years later (1773), stated that he had known a "flux of lymph of such long continuance, and so difficult to arrest, that he could explain its existence only upon the supposition that a large vessel" had been severed in bloodletting. Mascagni and Assalini, in 1787, cited cases of lymphorrhagia following venesection; the latter mentions the case "of a boy, eleven years old, who lost five pints of lymph in three days from a slight wound located upon the internal part of the thigh." Soemmerring (1795) and Monro also recorded observations of discharges of lymph following slight wounds; and Schreger (1799) mentions an instance of lymph fistula following bloodletting in the foot. Soemmerring remarks that the healing of wounds on the instep, near the ankles and knees, on the back of the hands, near the bend of the elbows, and near all joints, is impeded by the continual dripping of lymph, and offers the explanation that, as the "absorbents about the joints are protected only by very thin skin and very little fat," the swelling and inflammation which ensue prevent contraction and compression of the incised vessels. In 1817, Nasse recorded several instances of lymph fistulæ caused by traumatic lesions of lymph vessels; in some of the cases he analyzed the fluid discharged and proved it to be lymph.[1] Since then lymph fistulæ from traumatism seem to have attracted but little attention, though quite a large number of cases of lymphorrhœa and lymphorrhagia, occurring in consequence of diseased conditions of some portion of the lymphatic system, have been carefully recorded.

Subsequent to the discovery of the chyliferæ of the dog by Aselli; of the lymphatics in the intestines of man by Gassendi; of the receptaculum and thoracic duct by Pecquet; and of the lymphatic trunks of the extremities by Rudbeck, and about the time when the works of Ruysch, Meckel, Hewson, Mascagni, Cruikshank, and Hunter appeared, there were reported very many cases of chronic ulcers with fistulous openings, from which a fluid was discharged which the observers

[1] M. Nélaton has three times met with dilatation of lymph vessels at the fold of the elbow, on a level with the cicatrices of bleeding.

believed to be lymph. Even as late as 1859, Binet maintained that neglected lesions of lymph vessels would give rise "to ulcers of the most rebellious character," and suggests that ulcers of the lower extremities very frequently owe their origin "to alterations of the lymphatic vessels." Such ulcers may be recognized, says Binet, "by the abundance of the matter excreted, compared to the extent of the ulcer; by the increase of the excreted fluid when gentle pressure is made from the extremity toward the lesion; by the exceptional difficulty in cicatrization, and by the nature of the excretion." During the same period—previous, however, to the publication of the investigations of Mascagni, Cruikshank, Hunter, and Hewson—there were also a number of cases of "milky discharges" recorded. These were evidently cases of copious, and, perhaps, somewhat modified, purulent secretions. The instance of "milky saliva" reported by Antonio Nuck,[1] and the case of "milky discharge from the cutaneous surface of the abdomen" reported by Rommel,[2] are the most authentic of these curious cases. Among these dubious cases may also be enumerated the case of Schurig,[3] of a milky discharge from a wound; the case of fistulous communication with cold abscesses or deep-seated suppurating glands;[4] from the uterus, by Dolæus;[5] from the tunica vaginalis;[6] and from the mucous membrane of the nose, by Richter.[7]

[1] "Practicus observed saliva evidently milky. For a woman, he says, nursing a child, again became pregnant, and therefore weaned the child. The right breast, from neglect, became like a large tumor, and on a certain night subsequently, while suffering much pain, she had an abundant discharge of milk from the mouth, with a corresponding decrease of the swelling in her breast. She swallowed the milk as it came into her mouth (without any inconvenience), which continued for four months."

"But it may be asked, how came the decrease in the breast? In my judgment in no other way than this, that the masses of the blood were laden with chyle, the particles of which could not permeate the lactiferous tubules of the mammæ on account of their collapsed condition, but formed a tumor in those nearest the mammary gland, especially since their arteries were filled and were not capable of removing any more. Indeed, the chylous and milky particles were abundantly distributed through the blood mass, and permeated the glandular structures, especially the salivary, which offered the least resistance. In the meantime, the blood, on account of its freer and quieter motion, propelled the chylous particles remaining in the breast toward the veins, and thus to the heart; hence it followed the breast was emptied." Sialographia, etc., Ductuum Aquosorum Anat. Nova. Lugduni Batavorum, 1695, p. 49.

[2] "A woman who was nursing twins began to complain, a few days after the death of one of them, of a sense of dull pain and tension beneath the ribs of the right side of the abdomen and over the umbilicus. This feeling was succeeded by stretching, the stretching by itching, and the itching by an exudation of fluid from the skin, the color, taste, and consistence of which were identical with milk, and which yielded a true butter on agitation." Ephemerides Germaniæ, decur ii., ann. viii.

[3] Parthenolopia, Dresden or Leipsig, 1729.

[4] Med. Essays and Obser., by a Society in Edinburgh, vol. 5, part 1, p, 328. 1747.

[5] Ephem. Germ., decur ij., ann. vj., obs. 76.

[6] Madras Quarterly Journ. Med. Sci., vol. 1, p. 180.

[7] Med. and Surg. Obser., Transl. Ed., 1744.

Assalini relates (Binet) having seen, during many months, discharged from the neighborhood of the umbilicus, in two women recently delivered, a fluid which he believed to be of lymphatic nature. Both women succumbed to puerperal accidents. When Assalini wrote (1787), the lymphatics were being studied, and it is probable that he accepted conclusions without verification, as did Soemmerring after him, who, perhaps, mistook various collections of pus for metastases of milk. Puzos,[1] whose conception of the pathology of puerperal diseases seems to have been limited to the supposed formation of depots of milk in various parts and tissues, reports several cases in which collections of milk were found in the abdominal cavity. In one instance he found a "gallon of coagulated milk," the patient having died of fever five days after delivery of a dead fœtus.

The view held by Puzos, and by others previous to his time, that milk was formed from the food of pregnant women and passed commingled with the blood throughout the system, being determined, during gestation, to the uterus to nourish the fœtus, and to the breast, after delivery, to nourish the infant, led very naturally to the conclusion that a superabundant supply or deficient consumption would eventuate in the formation of depots of milk in other localities.

It is probable that the cases of Bossu, Martin, and Milleret (7, 8, and 10) belong to this class of reports; nevertheless the case of "particular dropsy" first observed by Poncy in 1699, was undoubtedly a case of hydrops chylosus. The description of the morbid appearances presents so many conditions so closely analogous to those found in the case reported by Marshall Hughes in 1841 (17) that the apparent vague statements must be attributed to the imperfect knowledge of the reporter, rather than to his fancy.

Frequency.—The reported cases of effusion of chyle and milk-like fluids into the pleural and peritoneal cavities, including the doubtful cases, may not exceed sixty-three, and these reports cover a period beginning with Poncy's case in 1699 and terminating with the reports of the cases of Drs. Smith and Newcomb, of New York—one hundred and ninety years. Their infrequency relegates them to the category of pathological curiosities. Nevertheless, thirty-nine of the cases of effusion and collection of chyle and chyle-like fluids in the abdominal cavity have been observed during the present century; thirty-four of these cases since 1850, and twenty-seven during the last and present decades. The increasing frequency of occurrence is thus clearly shown. For whilst the more numerous reports during these decades may, in some measure, be due to more accurate observation and careful study of morbid anatomy, yet it is not probable that such remarkable cases would have escaped

[1] Memoirs sur le lait ripander, on depots laiteux. New edition, Paris, 1801. P. 141.

the observation of intelligent physicians at any period since the time of Poncy, Morton, Monro, Scherb, Percival, and Sandifort.

The increasing occurrence of the cases of effusion of milk-like and fatty fluids into serous cavities is more clearly shown by the numerous recent reports of cases of lymphocele by Manson, Lewis, and Sonsino, and in this country by Mastin, Sr. and Jr., and Guitéras. Whether or not this fact is attributable to the more extended habitation and fruitful propagation of the intermediate host of the filaria sanguinis hominis now known to be constantly associated with, if not the cause of lymphuria and lymphocele, is a problem of great interest and graver import.

Effusion into the Pleural Cavities, Chylo-thorax.

There have been, including the doubtful cases, ten reports of cases of injury produced either by disease or accident, either of the thoracic duct or some of its larger affluent branches, in the thorax, sufficient to emit fluid in quantities incompatible with vigorous health, and certainly endangering life, if not causing death. In five of these cases, the chyle poured directly from the duct, in one of which (Bassius) the aperture in the walls of the vessel was not suspected until discovered at the autopsy. In the cases of Hoffman, Guiffart, Bonet, and Quincke the rupture of the duct was the result of external violence. The case of the learned mathematician, reported by Hoffman, was probably a case of empyema, and the case of the Baron de Heinden, reported by Bonet, who was injured by a missile in the battle of Fionensis, is doubtful, though Bartholinus, to whom the details of the case were communicated, expressed the opinion that the thoracic duct was injured. In Curling's case the lymph concretion, which occupied the right pleural cavity, was discovered in the body of a patient whose right lower extremity had been amputated at the hip-joint, ten months before his death, for malignant disease of the thigh. The concretion consisted of "softened and degenerated lymph." There was no evidence of malignant disease or "secondary deposits in any of the organs." In the cases of Rokitansky and Ormerod (see 23 and 25 of tabulated statement) chyle was found in the pleural and peritoneal cavities; in the former the effusion was the result of obstructed heart circulation, and in the latter the result of the interruption of the blood current in the left subclavian vein. In two of the cases reported by Quincke (28 and 29) chylous fluid was found in the pleural and peritoneal cavities, though the post-mortem examination determines the cases as one of "effusion of chyle into the peritoneal cavity," and the other an "effusion of chyle into the right pleural cavity." In both cases the anatomical lesions were clearly made out; in one the duct was lacerated within the thorax, and in the other, chyle retention was caused by inflammatory thickening of both folds of the mesentery. Some of the lacteals were completely, others partially occluded. The chyle vessels

were injected exactly to the union of the intestines with the mesentery. The flow of chyle was impeded, engorgement of the vessels ensued, and rupture occurred. But how explain the presence of chyle in the peritoneal cavity in Case 29 and in the pleural cavity in Case 28? In each instance the phenomenon is perhaps partially explicable upon the hypothesis that portions of the effused fluid traversed the lymph vessels of the diaphragm. In the case of Pelletier, the chylothorax and chylous ascites were associated with a milky diarrhœa and the vomiting of a milky fluid.

The cases in which fatty and oily fluids, other than chyle, have been found in the pleural cavities have not been included in this collection of cases of chylothorax. A number of such cases have been reported by Herard, Bacelli, Guéneau de Mussy, Quincke, Debove, and others. Quincke characterizes such fluids as effusions of chyle; Guéneau de Mussy as altered pus; and Debove as chyliform fluids, but specific effusions distinct from serous, purulent, or serofibrinous exudations. The clinical histories and morbid appearances associate such cases with tuberculosis and cancer, and determine the inflammatory nature of the exudate. In none of these cases has there been discovered any solution of continuity of chyle or lymph vessels.

With the exception of the cases of Rokitansky, Ormerod, and one of Quincke, all the cases of effusion of chyle into the pleural cavities belong to a class of casualties which do not admit of any generalization, and are only instructive in suggesting the occurrence of an improbable contingency, which may happen under circumstances very various.

The diagnosis of chylothorax cannot be made except by evacuation and examination of the fluid. In Quincke's case of injury by crushing of the chest wall, the effusion was not suspected until discovered by aspiration of the fluid. The prominent symptoms in such cases are dyspnœa and the accumulation of fluid in one or both cavities. In a single instance chyle was discharged drop by drop through a puncture in the chest wall. The prognosis is unfavorable and the treatment expectant.

Effusion of Chyle-like or Milky Fluid into the Cavity of the Tunica Vaginalis Testis: Galactocele, Chylous Hydrocele, Chylocele, Lymphocele, Milky Hydrocele, Lymphous Hydrocele, Filarial Hydrocele.

The case of galactocele reported by Vidal (de Cassis) seems to have been the first observation of this class of effusions. Ruthnum's case of hydrocele, "with contents simulating chylous urine," was published in 1864; and Ferguson's case of "milky fluid from the tunica vaginalis" in 1865. Neither of these cases attracted any special attention, and their reporters seem to have regarded them as curiosities. In Vidal's

case the fluid consisted of water, a substance resembling albumen, sugar, chloride of sodium, traces of lime, and numerous globules having the appearance of the globules of butter. In Ruthnum's the fluid looked like milk, and in Ferguson's case it consisted of a colorless fluid in which floated very many globules and a number of minute and large cells not unlike colostrum corpuscles. In each case the fluid coagulated spontaneously. Neither Ruthnum nor Ferguson refers to the case of Vidal, and probably did not know that Lebert, as early as 1855, had suggested that the case of Vidal was nothing more than the rupture of a "lymphatic varix into the cavity of the tunica vaginalis."

Previous to these reports varices had been frequently observed in the superficial and deep-seated integumentary lymphatic vessels and plexuses, but very rarely, if at all, in the capillaries and plexuses of the serous membranes. Morton, in 1689, and Mascagni, in 1787, observed varices of the pulmonary lymphatics; Caldani, in 1761, described a varix of the lymph vessels of the heart; Wathen, in 1787, and Sandifort, in 1780, recorded cases of dilatation of the lymph vessels of the small intestine. In the latter case the varix resulted from obstruction of the lacteals, caused by intussusception. Soemmerring observed the dilatation of the lymphatics of the duodenum and of the intestines in herniæ. He also refers to instances in which he had seen the lymphatic vessels of the liver and spleen "filled with a whitish material," and Lebert asserts that he had frequently observed dilated lymphatics on the surfaces of the liver and lungs. Schreger and Tilesius saw a case of dilatation of the lymph vessels of the conjunctivæ.

The fourth case in chronological order was reported by C. H. Mastin (1874), of Mobile, and to him is due the credit of verifying the suggestions of Lebert. After an examination of a specimen of the fluid obtained at the first tapping, I called the attention of Dr. Mastin to this suggestion, and in his second operation in April, 1875, he "opened the sac freely for a distance of two or three inches" and discovered, at the upper portion of the membrane, where it begins to be reflected over the testis, "a granular-looking mass," which having been snipped off was recognized by him to be the "patulous mouths of three or four small vessels," which he believed were "portions of lymph vessels." In 1881, in a similar case, Dr. W. M. Mastin practised the same procedure and discovered a varix similarly located, but when cut off showed the patulous orifice of only a single vessel, from which lymph exuded. Specimens of fluid from both of these cases were carefully examined by Dr. James Tyson, who described them as comparable to chyle in their chemical and physical characters, and expressed the belief that they found exit into the sac through rupture of a lymph vessel.

These two observations made by our own countrymen, in the city of Mobile, seemed to have established the nature of lymphocele. But, in

the meantime, Lewis had discovered the filaria sanguinis hominis, and quite a number of cases of lymphocele, lymphuria, and elephantoid diseases had been reported by Manson, Lewis, Sonsino, and others, in which this parasite was recognized as the probable, if not the constant and positive cause. In this country, since the beginning of 1885, there have been reported thirteen cases in which the filaria were found, two of which were cases of lymphocele. The first in 1886 by Guitéras, in the city of Charleston, and the other in 1888 by Mastin, in the city of Mobile. Manson ascribes elephantoid diseases to embolism of lymphatic glands by the ova of the filaria, stasis, and consequent regurgitation of lymph. If this be true, it is not improbable that the varicose and ruptured lymph vessels of the tunica vaginalis in cases of lymphocele are the result of gland obstruction produced by similar emboli. It has not been shown, however, that filaria are present in every case of lymphocele. It is conceivable that adenitis, gonorrhœal lymphangitis, or other conditions which obliterate the permeability of neighboring and connecting glands might cause stasis of lymph and dilatation and rupture of lymph capillaries and plexuses, with which the serous membranes are so richly supplied. Vidal vaguely hinted that a previous gonorrhœa was the cause in his case; and Mastin, in a review of the previous cases, assumed, in 1883, that chylocele was due to "obstructed gonorrhœal lymphangitis." Since the discovery of the filaria in the third case occurring in Mobile, he has modified his opinion, and hints at a classification of causes into filarial and inflammatory obstruction of lymph-glands. Sonsino asserts that the theory of mechanical obstruction caused by the adult worm in the lymphatic channels, with all its consequences, as lymphangitis, lymphatic dilatations, rupture, and consequent lymph extravasation or external lymphorrhagia "is sufficient to explain all the morbid disorders or diseases which have been associated with the worm, and may be originated by it, as lymphuria and lymphocele." The matured opinion of those who have had the best opportunities of studying the relation of the filaria to diseases in general seems to accept the statement of Sir Joseph Fayrer that "it has been shown that disorders of the lymphatic system are most frequently associated with, if not caused by, the filaria." Guitéras asserts that "manifestations of filarial disease may all be included under the head of disturbances of the lymphatic circulation." This view meets with opposition from Rake, who failed to find filaria in cases of elephantiasis and chyluria examined by him in Trinidad.

The chemical and physical properties of the fluid emitted in lymphocele characterize it as a pathological product. Simple dilatation and rupture of a lymph channel, plexus, or space would not necessarily give exit to a fluid so rich in fat and other products.

The recent invasion of portions of the sub-tropical belt of this country

by the filaria, and reports of cases of disease with which the parasite has been so uniformly associated, together with the fact that the mosquito has been proven to be its intermediate host, present considerations of the highest importance to the profession and general public.

The diagnosis of lymphocele depends upon the ordinary symptoms of hydrocele and opacity of the tumor, but the character of the fluid can only be ascertained by observation and chemical and microscopical examination. Vidal noted the absence of translucency. It may be that the general symptomatology of filarial disease coexisting with the collection of fluid in the tunica vaginalis might suffice to determine the presence of parasitic lymphocele, but neither of the cases observed in Mobile seems to have presented such a clinical picture and history. The case cited by Guitéras was associated with commencing elephantiasis of the scrotum.

Ruthnum cured his case by injections of iodine. Mastin dissected back the varix for a short distance and "tied the bundle *en masse*, with a small and very strong silk ligature." Mastin, Jr., practised the same procedure. In both cases the cure was complete.

Chylous, Chyliform, and Oily Ascites. [Hydrops Chylosus: Hydrops Adiposus.]

The accompanying tabulated statement, arranged chronologically, presents a brief and condensed summary of the reports of the cases of chylous and oily ascites. A rigid analysis would exclude many from the category of chylous ascites. The cases of Bossu, Martin, Milleret, and Sandifort, which occurred in puerperal women, are so closely allied to the views of Puzos, previously referred to, that they must be accepted *cum grano salis*. In two of the cases there was no extravasation into the peritoneal cavity, one of which was a chylous cyst of the mesentery, and the other a case of chyle retention in the chyle vessels of the mesentery. In several of the cases (18, 19, 21, 27, and 34) the fluid was more oily than chylous and coexisted with tuberculous peritonitis, which would more properly characterize the fluid as a morbid exudation than an effusion of chyle. In three of these five cases the ascites was ascribed to obstructed pulmonary circulation, one of which (18) had suffered for a long time with chronic bronchitis, with "purulent expectoration containing tuberculous concretions;" another (27) suffered for several years with scrofulous affections and died of pulmonary tuberculosis; and the third (21) died of pulmonary and peritoneal tuberculosis. Excluding the puerperal and tuberculous cases, together with the two in which no extravasation was found in the peritoneal cavity (50 and 53), the cases of chylous ascites proper will not exceed twenty-eight. In Case 37, Prof. Winiwarter ascribed the intra-abdominal effusion to "congenital occlusion of the thoracic duct, formation of a compound cystic tumor through

Cases of Chylous Chyliform and Oily Ascites arranged Chronologically.

No	Reporter.	Date.	Where reported.	Sex.	Age.	Causative conditions.	Treatment.	Results.
1	Poncy, Jr.[1]	1669	Saviard, Observations in Surgery, trans. by Surgion, p. 247 Lond.	F.	18	Obstruction of lymph glands and vessels.	Medicines and tapping,	Died.
2	R. Morton,[2]	1703	Morton's Phthisiologia, Lib. i., chap. x.	M.	2	Compression of duct, near subclavian vein, by large tumors behind "trachea arteria," producing rupture of lacteals.	Tapping.	Died.
3	Littré,	1710	Mém. de l'Acad. des Sci.	F.	7	Enlarged and chalky mesenteric glands.	Not stated.	Died.
4	Chomel,	1728	Mém. de l'Acad. des Sci.	F.	24	Rupture at umbilicus third day after confinement, with discharge of five pints of milky fluid; supposed rupture of abdominal lymphatics.	Counter-opening.	Recovered.
5	J. G. Schurb,	1729	Haller, Dissertatio Abmorborum, vol. iii. p. 237.	M.	39	Calculus in receptaculum chyli.	Tapping.	Died.
6	Donald Monro,[3]	1765	Essay on Dropsy.	F.	...	Effort to "raise a burthen."	Tapping.	
7	Bossu,	1770	Journ. de Méd. Chir. Pharm., xxxiv. p. 283.	F.	...	Metastasis of mammary secretion during first week of puerperium.	Tapping, purgatives, and resolvent applications to abdomen.	Recovered.
8	Martin,	1770	Journ. de Méd. Chir. Pharm., xxx. p. 555.	F.	...	Metrorrhagia; miscarriage; unusual exercise.	Tapping.	Recovered
9	Targioni, cited by Bianchi,[3]	1771	Lo Sperimentale, lvii. p. 78, 1886.	F.	21	Obstinate chlorosis; imperfect chylification due to pressure of lymphatics by enlarged spleen.	Tapping, purgatives, deobstruents, corroborants, diuretics, cardiac tonics, mercury.	Recovered.
10	Milleret,	1774	Journ. de Méd. Chir. Pharm., xlii. p. 237.	F.	39	Arrest of secretion from mammary glands and intestinal canal.	Spontaneous discharge at umbilicus, and tonics.	Recovered.
11	Joseph Lieutard,	1779	Historia Anatomica Medica, t. i. p. 257.	F.	...	Mesentery cirrhosed and filled with a whitish, chalky substance; large quantity of milky or chylous fluid in abdominal cavity.	Not stated.	Died
12	Lossium, cited by Lieutard,	1779	Historia Anatomica Medica, t. i. p. 257.	M.	Child	"Abdominal cavity filled with a milky fluid, evidently derived from ruptured chyliferous vessels."	Not stated.	Died.
13	Ed. Sandifort,	1781	Observ. Anat. Patholog., Ludg. Bat., iv. 1–21, 3 pl.	F.	...	Following premature birth of twins at seven months. Sandifort reports another case of lacteal metastasis to abdominal cavity.	Effusion only discovered at autopsy.	Died.
14	Percival,[3]	1788	Essays, Med., Physiol., and Exp., ii. p. 177.	F.	8	Rupture of lacteals.	Tapping.	Recovered.
15	Weaver,	1814	Med., Surg., and Pharm. Repos., ii. p. 377.	M.	...	Protracted illness, supposed to be liver disease,	Mercurials and other medicines.	Died.
16	Truman Abell,	1833	Boston Medical and Surgical Journal, vii. p. 13.	F.	...	Abdominal tumor following pregnancy with twins.	Spontaneous rupture at umbilicus with discharge.	Died.

[1] First tapped by Poncy July 2, 1669. Died in 1670, after twenty-second tapping; amount of fluid withdrawn 285 French pints.
[2] Essay on Dropsy and its Species, by Monro, third ed., p. 22. London, 1765.
[3] Bianchi cites three cases from Méhu, but without details; probably cases of chyliform ascites.

No.	Reporter.	Date.	Where reported.	Sex.	Age.	Causative conditions.	Treatment	Results.
17	Hughes,	1841	Guy's Hospital Reports, v. p. 297.	M.	30	Tumor of agglomerated mesenteric glands; numerous lacteals were large, tortuous, varicose, and distended with milky or clear fluid.	Not stated.	Died.
18	Van Camp,	1843	Ann. Soc. de Méd. de Anvers, ii. p. 86.	M.	59	Chronic bronchitis, asthma, tuberculosis.	Not stated.	Died.
19	J. Popham,	1854	Dublin Quarterly Journal of Medicine, xvii. p. 467.	F.	28	Chronic peritonitis, with fat in the effusion; fatty degeneration of liver; free fat in blood; fatty contents of both ovaries combined with hair and bony matter.	Not stated.	Died.
20	M. Lorain,	1859	Compt. Rend. Soc. de Biol., Par 2, s. v. 162.	F.	8	Symptoms analogous to those of tubercular peritonitis; numerous tubercles in lungs.	Not stated.	Died.
21	T. Stevenson,	1860	Guy's Hospital Reports, 3 s., xvii. p. 231.	...	...	Report refers only to the composition of two specimens of milky fluid obtained from abdomen in two cases.	Not stated.	
22	Oppolzer,	1861	Allg. Wien. med. Zeitung, S. 149.	F.	42	Mitral and tricuspid insufficiency; thoracic duct plugged at outlet with pale and red fibrous coagula; walls thickened; lumen dilated with thrombi.	Not stated.	Died.
23	Rokitansky,	1861	Patholog. Anatomy, Bd. ii. S. 388.	F.	6	Dilatation of heart; thickening and shortening of mitral valve; occlusion of thoracic duct with soapy material.	Not stated.	Died.
24	W. Cayley,	1866	Trans. Path. Soc. Lond., xvii. p. 163.	M.	19	Fibrinous vegetations attached to intima of subclavian vein; partial obliteration of thoracic duct near its outlet; rupture of receptaculum.	Not stated.	Died.
25	Ormerod,	1868	Trans. Path. Soc. Lond., xix. p. 199.	M.	24	Left subclavian and its affluent branches plugged with a light colored and ragged clot.	Tapping.	Died.
26	Hoppe-Seyler,	1873	Arch. Gesammte Phys., vii. p. 407.	...	...	Rupture of chyle vessels from pressure of a tumor.	Not stated.	
27	Bergeret,	1873	Journ. d'Anatomie, t. ix. p. 585.	F.	27	Scrofula; pulmonary tubercle; oily ascites.	Not stated.	Died.
28	Quincke,	1875	Archiv f. klin. Med., Bd. xvi. S. 128.	F.	30	Flow of chyle obstructed by inflammatory thickening of folds of mesentery and transformation of adipose into connective tissue	Tapping.	Died.
29	Quincke,	1875	Archiv f. klin. Med., Bd. xvi. S. 121.	M.	50	Run over by a wagon. Rupture of thoracic duct; effusion into peritoneal and pleural cavities.	Tapping.	Died.
30	Quincke,	1875	Archiv f. klin. Med., Bd. xvi. S. 121.	F.	33	Primary cancer of peritoneum; fluid containing fat globules and fat cells; hydrops adiposus.	Not stated.	Died.
31	Quincke,	1875	Archiv f. klin. Med., Bd. xvi. S. 121.	F.	10	Scrofulous glands, and tuberculosis; fluid milky and fatty; hydrops adiposus.	Not stated.	Died
32	Friedreich, cited by Quincke,	1875	Archiv f. klin. Med., Bd. xvi S. 121.	F.	12	Scrofula and miliary tubercle; milky fluid, with fat and fatty cells; hydrops adiposus	Not stated	Died.
33	Pelletier,	1875	Journ. de Méd. Chir. Pharm., lxiii. p. 496.	F.	...	Chylous fluid vomited; also found in peritoneal and pleural cavities.	Tapping.	Recovered.
34	Wilhelm,	1875	Corres.-Blat. d. Aerztlichen Vereine d. Rhen prov., No. 14, p 13.	...	2 mos.	Abdominal tumor firmly attached to spinal column in umbilical region; rupture of thoracic duct.	Tapping, first at two months.	Died.
35	Ballman,	1876	Centralbl. f. d. med. Wissensch., xiv., p. 274.	F.	39	Peritoneum closely studded with tubercle.	Tapping.	

No.	Reporter.	Date.	Where reported.	Sex.	Age.	Causative conditions.	Treatment.	Results.
36	F. Winckel,	1876	Archiv f. klin. Med., Bd. xvii. S 303.	F.	39	Puncture of chyle vessels by parasites. Had lived in Surinam.	Tapping; lived four years.	
37	Winiwarter,	1877	Jahrbuch. f. d. Kinderheilkunde, v. xi. Nos. 1, 2, and 3.	F.	Birth	Rupture of chylous cyst; probable occlusion of thoracic duct and dilatation of lacteals.	Careful alimentation and tapping.	
38	Kein,	1881-2	Mém. Soc. de Méd. de Strassburg, xix. 2, 52, 57.	F.	50	Rupture of mesenteric and intestinal lacteals.	Tapping, each time four gallons of milky fluid.	
39	Smidt, with permission of Guttman,	1881-2	Zeitschrift f. klin. Med., p. 199	M.	11	Chronic idiopathic peritonitis.	Tapping.	Died.
40	Veil,	1882	Paris Thèse, 21.	F.	25	Syphilitic gummata of liver; fluid chylous and rich in fat globules with few leucocytes.	Not stated.	Died.
41	Gaucher, cited by Veil,	1882	Paris Thèse, 21.	M.	47	Cirrhosis of liver; milky and containing fat.	Not stated.	Died.
42	Gaucher, cited by Veil,	1882	Paris Thèse, 21.	M.	39	Hard drinker; cirrhosis of liver; fluid first two tappings ordinary, afterward milky and fatty.	Not stated.	Died.
43	Gaucher, cited by Veil,	1882	Paris Thèse, 21.	...	11	Sarcoma of omentum and mesentery; enlarged and degenerated mesenteric glands. Thoracic duct normal	Not stated.	Died.
44	Whitla,	1883	Brit. Med. Journ., vol. i. p. 1089, 1885.	M.	13	Peritoneum and pleurae studded with miliary tubercle; liver and lungs infiltrated with miliary granulations; mesenteric gland enlarged, forming tumor; thoracic duct occluded at middle third, dilated at lower third, with perforation at lowest part; receptaculum dilated and perforated.	Tapping; 117½ pints withdrawn in three months.	Died.
45	F. Nickerson,	1884	Mass. Med. Soc., June, 1884.	M.	56	Chylous cyst; probably continuous hard labor.	Tapping.	Recovered.
46	Lettule,	1884	Revue de Méd., iv. p. 723.	M.	3 mos.	Congenital cardiopathy and chronic peritonitis, with cough; probably syphilis.	Tapping and digitalis.	Improved.
47	Lettule,	1885	Revue de Méd., iv. p. 930.	M.	8	Rheumatism involving heart; enlarged liver and spleen; fluid milky, containing granules, leucocytes, and fat globules.	Not stated.	Died.
48	Strauss,	1886	Arch. de Physiolog. et Patholog.	M.	61	Peritoneal cancer, perforation of chyle vessels on anterior surface of mesentery.	Tapping; diet of milk and butter.	Died.
49	P. J. Murphy,	1886	Pamphlet.	F.	19	Violence; long and fatiguing walks and dancing.	Laparotomy.	Recovered.
50	N B. Carson,	1889	Medical News, lv. p. 52.	M.	39	Chylous cyst of mesentery.	Laparotomy and removal of cyst	Recovered.
51	Stephen Smith,	1889	Personal communication.	M.	9	General health fair; no cause discovered, 28 pints of fluid evacuated in 21 days; rich in lymph cells, few blood corpuscles, slightly acid; specific gravity 1015.	Tapping and drainage tube.	Under observation
52	J. E. Newcomb,	1889	Personal communication.	M	2	Previous health good; no cause discovered; fluid milky, containing lymph cells.	Tapping.	Under observation.
53	Weichselbaum,[1]	.....	Virch. Archiv, lxiv. p. 145.	M.	89	No extravasation, but stasis of chyle in the chyle vessels of the mesentery and hypertrophy of the interposed adipose tissue.	Discovered at autopsy.	Died.

[1] Case of chylangioma cavernosum.

distention of the lacteals at the root of the mesentery by obstructed chyle, rupture of one of the cysts before or during birth, persistency of this solution of continuity, and increasing effusion of chyle." In twenty-seven cases the rupture of some chyle-conveying vessels seems to be clearly established.

Etiology.—Age is an unimportant element of causation. The ages of the twenty-eight cases vary between birth and sixty-two years. Fifteen were females, the oldest sixty-two and the youngest at birth. The ages of the eleven males ranged between two and sixty-one years. If the puerperal and tubercular cases be included, sex assumes a more important etiological relation, and the proportion would be two females to one male. Race, climate, occupation, and circumstances of life are without influence. Hereditary and acquired tendency to diseases of the lymphatic system, and especially disease of the walls of the thoracic duct and receptaculum chyli, which are very rare and mainly limited to tuberculous infiltrations and ossific changes, demand mention as primary conditions which may facilitate the rupture of the walls of chyle-conveying vessels; syphilis may also. Primary rupture occurred in but five of the cases. In one (6) the cause was "an effort to raise a burthen;" in two (45 and 49) muscular effort; one vomiting; and one violence inflicted upon the chest. In eleven cases the rupture or perforation was demonstrated, and in sixteen others the character of the fluid left no doubt of its escape from a chyle-conveying vessel.

Chylous ascites may be the secondary result of a variety of morbid conditions which directly or remotely obstruct the flow of the chyle through the lacteals, receptaculum, or thoracic duct, impede its exit into the left subclavian vein, or retard the current of blood in the left subclavian vein, right side of the heart, or lesser circulation. Such obstruction may be caused by anatomical defects and anomalies of position and distribution of the chyle vessels, by dilatation or stenosis, and such disease of the coats of these channels as would lessen their expansibility and tensile strength; by disease of the mesentery, hypertrophy, cavernous and fibroid transformation of its adipose tissue; by indurated, degenerated, and impermeable mesenteric glands, embolism, and deposits of bony, chalky, gelatinous, and soapy material in the channels; compression by inflammatory adhesion or by thoracic, abdominal, and aneurismal tumors. In one case it was ascribed to the presence of the filaria.

Dilated chyliferous lymphatics are quite often observed in the mesentery. The usual cause (Zeigler) is obstruction due to inflammatory or neoplastic growths located in the mesentery or thoracic duct. Sometimes the obstruction is due to lymph thrombosis. The dilated vessels look like straight cylindrical ridges, or convoluted, saccular, or beaded cords; their contents are either white and limpid or pulpy and caseous.

In three cases (5, 24, and 43) the aperture through which the chyle escaped was found in the wall of the receptaculum; in one the perforation resulted from ossification of its wall and filling of the cavity with a bony concretion; and in No. 24, in consequence of stenosis of the thoracic duct, near its outlet. In five cases (1, 2, 14, 17, and 28), and probably in 23 and 26, the rupture took place in the lacteals. In four of these cases, and in the cases of Hoppe-Seyler, Abell, and Wilhelm (16, 26, and 34)—in which no post-mortem examination was made, abdominal tumors were discovered, either by inspection of the cadaver or by palpation during life. In two cases the thoracic duct was compressed by tumors located near its entrance into the left subclavian vein. These tumors were usually glandular, and consisted of hypertrophied and degenerated bronchial or mesenteric glands coexisting, in two instances, with cancerous formations.

In Cases 23 and 25, the chylous effusion into the peritoneal cavity was attributed to interrupted venous blood current in the subclavian and innominate veins; and in Cases 2, 17, and 24 to stenosis of the thoracic duct at or near its entrance into the left subclavian vein. Clinical[1] observations seem to have established the causal relation of interrupted blood current in the large veins near the heart to lymph stasis and effusion of chyle into the peritoneal cavity, and the experiments of Cooper, Morton, Dupuytren, and others demonstrate that complete arrest or interruption of the current of the fluid in the thoracic duct, at or near its terminal extremity, will, if the anastomotic circulation is not speedily and sufficiently established, produce distention, dilatation, and repletion sufficient to cause rupture, which most frequently takes place in the receptaculum or lacteals. Clinical and post-mortem observations are even more conclusive than experimentation, for they connect directly the process of gradual occlusion of the duct by disease with the concurrent development of a diffuse area of lymphangiectasia, which in some cases terminated in rupture and extravasation. In this connection may be cited the cases of Rokitansky, Ormerod, Morton, Hughes, and Cayley enumerated in the tabulated statement, and other cases which I have collated in a contribution to the AMERICAN JOURNAL OF THE MEDICAL SCIENCES, vol. xc. p. 373.

The force exerted upon the contents of the thoracic duct by the passing current of blood in the subclavian vein is nothing more than an illustration of the hydraulic principle of Venturi, but the explanation of the relation of cause and effect between cardiac disturbances and lymph stasis and chyle effusion must, in a general way, be sought in the varying conditions of blood pressure. Niemeyer[2] asserts that "obstructive

[1] Busey: The Causal Relation of Obstructed Cardiac Circulation to Lymph Stasis. AMERICAN JOURNAL OF THE MEDICAL SCIENCES, vol. xc. p. 373.

[2] Text-book of Practical Medicine, vol. i. p. 120.

engorgement of the great veins extends to the thoracic duct," and Hertz says an over-distended left subclavian vein will not permit the adequate emptying of the thoracic duct.[1]

The relation of the puerperal conditions to the effusion of chyle are not susceptible of explanation. The theory of metastasis of the secretion of the mammary glands is untenable. In Sandifort's case the uterus and vagina were lined by a pseudo-membrane, which was not detachable; in Martin's case the evacuated fluid resembled whey; in Milleret's case the fluid was at first white, "of the consistency of clear bouillon," afterward gelatinous and offensive, and, finally, soap-like and odorless. Subsequently the patient suffered with lymphatic engorgement of the lower extremities and lumbar region, but finally regained her health. In the case reported by Bossu the secretion of milk was so abundant that applications were made to suppress it, which were entirely successful; then followed the accumulation of milky fluid in the abdomen, which having been evacuated, "the milk returned to the breast," and no reaccumulation followed. Three of these four patients recovered. The occurrence of lymphatic œdema in Case 10 is the only circumstance in the clinical reports of these cases suggestive of such a diagnosis, but it is insufficient to justify the classification of the case in the category of chylous ascites. The case reported by Chomel is analogous to the case of Truman Abell, and is worthy of a more favorable consideration. "A puerperal woman, aged twenty-four years, after suffering for several days with a swelled, tender, and painful abdomen, was suddenly awakened during the night by the pouring out of a milky fluid through a rupture of the umbilicus. Five pints of fluid were lost." Chomel ascribed the accumulation of fluid in the abdominal cavity to rupture of lymphatic vessels.

Pelletier's patient (33) was seized with chylous vomiting and diarrhœa, and a chylous fluid was withdrawn by tapping from the pleural and peritoneal cavities. This case was reported in 1875, at a period when a mistake in diagnosis ought not to have been made; nevertheless, the causal relation of the vomiting and diarrhœa to the extravasation of a similar fluid into the serous cavities is not apparent. Sprague reports a "fatal case of vomiting of a chyle-like fluid," but there was no effusion into either of the serous cavities. Chyle may be vomited and discharged *per anum*, and it is not impossible that in rare instances the effort at vomiting might rupture some chyle-conveying vessel.

In nine cases the fluid found in the peritoneal cavity was associated with tuberculosis, in four of which it is distinctly stated that the peritoneum was more or less studded with tubercle. The fluid in these cases was very rich in fat, albumen, and chlorides. Perforation or rupture of a chyle-conveying vessel was discovered in two of the cases.

[1] Ziemssen s Cyclop. vol. v p. 382.

They were reported as cases of milky or oily ascites, and their clinical histories picture the ordinary symptomatology of either pulmonary or peritoneal tuberculosis.

In some of the cases of chyliform ascites, in which no solution of continuity of chyle and lymph channels could be discovered, the fluid consisted of an inflammatory product mixed with lymph and chyle. In such cases the chyle and lymph must have escaped by transudation. This conclusion is the more probable in view of the facts that in some of these cases the changed condition of the coats of the vessels was such, together with the partial or complete obliteration of the lumen of the thoracic duct or smaller channels, either by the thickening of their walls or by the lodgement of morbid products, that transudation of lymph and chyle might take place in quantities sufficient to impart to the coexisting inflammatory product characteristics easily distinguished by the ordinary methods of physical, chemical, and microscopical examinations.

In another form of chyliform ascites, as for instance the cases of Whitla and Straus, in which the fluid was not unlike that found in the cases above referred to, but containing a larger proportion of chyle and lymph, the admixture of chyle and an inflammatory product was clearly demonstrated by the coexistence of tuberculous peritonitis or cancer, and the discovery of one or more perforations in the walls of the chyle or lymph vessels, through which chyle and lymph escaped. In several of such cases there was also discovered more or less obstruction to the flow of chyle through the thoracic duct, and, consequently, increased pressure in the receptaculum, lacteals, and lower part of the duct, where rupture almost always take place.

In that form of chyliform ascites more properly and usually denominated adipose or oily ascites, in which the lymph and chyle channels, lymph-glands, lacteals, and mesentery are intact and free from disease, distention, pressure, or obstruction, and normal in structure, size, and position, which must exclude the effusion of lymph or chyle by transudation or escape through solution of continuity in any part of the lymph system, the milky, fatty, chyle-like, and opalescent fluid must necessarily be a morbid product. The fluid in this class of cases varies somewhat in appearance, but more markedly in the proportions of fatty matter. Guéneau de Mussy asserts that all such cases are simply cases of chronic tuberculous, cancerous, or neo-membranous peritonitis, which is probably true, with, perhaps, a single exception. That exception refers to the case of Guttman, reported by Smidt, in which the cause is ascribed to a "chronic idiopathic peritonitis."

Whilst, therefore, in most cases of chylous and in some cases of chyliform ascites, there is either rupture or perforation of a chyle-conveying channel, transudation through attenuated, diseased, and degenerated walls cannot be excluded as a cause. In the chyliform varieties transu-

dation is the most frequent and important element of causation, because of the more constant presence of morbid conditions of the walls of such channels.

It must, then, be admitted that these forms of ascites are more frequently due to some lesion of the lymphatics than to any other cause. Nevertheless it is true that ascitic fluid may be milky or chylous in appearance without containing any chyle or lymph. Letulle and Guéneau de Mussy believe that the lactescent color of such fluids is due to the fatty degeneration of the white blood-corpuscles.

Symptomatology and Diagnosis.—The symptomatology of effusion of chyle into the peritoneal cavity is not sufficiently distinctive to differentiate such cases from those of ordinary ascites. Wounds of chyle-conveying channels might be diagnosticated by the location and direction of a stab or puncture, in connection with the escape of chyle into the pleural or peritoneal cavities or externally through the aperture, or its evacuation. As such effusion can only occur through transudation or solution of continuity, its escape externally, or presence in either cavity, must be essential for differential diagnosis. If no fluid escapes externally, then only the symptoms of a fluid accumulation in the cavity are present, the character of which must be ascertained by evacuation and examination.

The quantity of chyle which may escape by transudation through the walls of normal vessels is small, and the accumulation is neither rapid nor continuous. When it escapes through an aperture in the walls of some channel the opposite conditions are present. Hence an effusion of chyle might be suspected when a rapid accumulation of fluid in the peritoneal cavity should be associated with sudden loss of appetite, acute emaciation and anæmia, rapid prostration, diminished secretion of urine, and the presence of such conditions as would suggest occlusion, stenosis, or compression of the thoracic duct, or arrest of the exit of the chyle into the subclavian vein. The gradual, partial, and progressive compression of the thoracic duct has been frequently determined by the location of a tumor, associated with evidence of blood impoverishment. In uncomplicated cases due to rupture (Cases 6, 48, 49), "the patient, usually after exertion (Murphy), is suddenly seized with sharp, localized pain, followed by swelling of the abdomen," anuria, anorexia, nausea, and, possibly, vomiting. In most cases the symptoms are complicated with those of the causative condition, and a diagnosis is only possible by an examination of the evacuated fluid. In no instance has a diagnosis been made previous to observation of the fluid.

In the chyliform varieties the symptomatology is even more variable, because of the presence of the symptoms of the concomitant visceral lesion.

In some cases of suspected leakage of chyle the diagnosis may be verified by experimental feeding. In Poncy's case the odor of some articles of diet was recognized in the evacuated fluid; and in the case reported by Straus the proportion of fat in the fluid more than doubled during the exclusive milk and butter diet.

Prognosis.—Of the 53 tabulated cases, 33 died, 10 recovered, and in 7 cases the result is not stated. 3 of the puerperal cases recovered, and all the tubercular cases died. Of the 10 recoveries, 8 were females and 2 were males. Of the 28 cases of chylous ascites proper, 15 died, 6 recovered, and in 5 cases the result is not stated. Of the 5 recoveries, 4 were females and 2 males. In whatever aspect the cases may be considered, the prognosis is unfavorable. The larger number of cases were females, and the larger proportion of recoveries were of the same sex. The female sex, therefore, exhibits greater liability to, and a greater probability of recovery from, chylous ascites than the male. In view, however, of the nature of the causative lesions—perforation or rupture of a chyle-conveying channel—the proportion of recoveries is remarkable.

Bianchi says the prognosis is more grave when the extravasation is due to some chronic lesion of the chyliferous vessels than when it is due to a rupture of the thoracic duct, for the escape of lymph favors the union of the edges of the wound and the closure of the latter by thrombi. It is even more grave when the rupture of the vessel is due to abnormal distention caused by some obstacle because the process of healing is interfered with. The gravity of the prognosis is increased when there are concomitant visceral lesions. The immediate prognosis is perhaps more grave in chylous ascites than in the chyliform. The more extensive the lesion of chyliferous vessels, and the larger the wounded or diseased vessel, the greater the facility of the reproduction of the ascites, and the more rapid and progressive the emaciation.

There is no instance of the preservation of the life of an animal beyond a limited number of days, in which the communication of the lymphatic with the venous system had been completely and permanently obliterated. The wound inflicted by ligation of the thoracic duct could not have caused the death of the animal experimented upon, for in a number of cases it healed by the first intention; neither could death be attributed to the rupture, either of the thoracic duct, lacteals, or receptaculum, nor to the extravasation of chyle or lymph into the pleural or peritoneal cavities, or into the cellular tissue about the abdominal viscera, for death took place in those cases in which neither of these conditions complicated the ligation of the duct, as it did in those in which one or more of these conditions supervened. When the animals, in cases of experimental ligation of the duct, recovered, the current of chyle and lymph was reëstablished through anastomosis. Monro inflicted a wound in the receptaculum chyli of a pig, from which it apparently recovered, but effusion was

arrested by a coagulum. Lower ruptured the thoracic duct of a dog; the animal died after languishing a few days, and two pounds of chyle were found in the right pleural cavity. Bartholini mentions a case in which the thoracic duct was wounded, and the patient lived a long time —"longa fuit tabes." Goodlad refers to the case of a man who was wounded in the duct, who seemed nearly cured, but finally died.

The clinical and post-mortem cases, in which the communication between the venous and lymphatic systems was either partially obstructed or wholly obliterated, are not very numerous; and many of the reports are simple statements of bare facts, wanting in the particulars necessary to demonstrate the effect of obstructed conditions of the duct and lacteals upon the duration of life. Meagre and unsatisfactory as these clinical details are, they, nevertheless, point to two conclusions: 1st, that a free and unobstructed channel of communication between the venous system and chyle-conveying vessels is essential to the proper nutrition of the body and preservation of life; and 2d, that death following the partial or complete obliteration of this communication is the result of inanition. The gradual wasting of the body and progressive debility which so markedly characterize the clinical cases in which the flow of chyle, either through the duct or anastomosing connections, was insufficient for the maintenance of the normal standard of nutrition, more decisively point to innutrition as the cause of death than the sudden exhaustion which follows the abrupt arrest of the flow of chyle and lymph toward the blood. In the experimental and traumatic cases there may be the superadded element of violence, but this cannot be a potential influence, for it has been proven that in every instance of experimental obliteration of the communication in which death occurred, no anastomosing connection could be discovered, and in every case in which life was preserved, where proper methods were adopted to eliminate all doubt, such anastomosing connections were found. The causative condition must, undoubtedly, influence the duration of life, but without the loss of chyle it would, as, for instance, in cases of compression of the channel by a benign tumor, not be very significant.

Clinical reports furnish many cases which illustrate the direct relation, as cause and effect, which subsists between copious losses of lymph and chyle and the marked depression, dulness, and exhaustion which invariably succeed abundant lymphorrhagiæ; and which, likewise, follow artificial occlusion of the thoracic duct, and so distinctly characterize the brief after-life of the animal thus permanently deprived of nutritive material. With but rare exceptions, the cases of copious loss of lymph have been attended with great exhaustion. The latter class may by rest, arrest of the lymphorrhagiæ, and proper alimentation recuperate, to suffer again and, perhaps, many recurrences, similar in course, duration, and effect; but copious and continuous loss of chyle is inevitably fatal.

Cooper records the observation that young dogs experimented on by

him lived longer than the old, and the lean much longer than the fat. In the clinical cases the average age of the fatal cases was thirty-one years, and in those who recovered it was twenty-four years, but the cases are too few, in which the ages are given, to attach any value, as an element of prognosis, to a difference of seven years.

It is not possible to establish any constant and direct relation between the appetite and the obliteration, perforation, or rupture of the chyle-conveying channels. It lacks uniformity—sometimes diminished, sometimes variable, and again voracious, even in the same patient, but is uniformly associated with progressive emaciation, quite often with fever of the hectic type, and gastro-intestinal disorder with white and chalky stools. In the case of chylous ascites reported by Poncy, from July 16, 1699, to March 4, 1700, the date of his death, 289 French pints of fluid had been drawn in twenty-two tappings. The evacuated fluid was always chylous, and frequently emitted the odor of articles of diet. In this patient there were progressive emaciation and waste of all the tissues of the body.

Nature of the Effused Fluid.

In most of the cases of effusion into the pleural and peritoneal cavities the fluid was chyle, which had escaped from chyle-conveying channels. In the cases of lymphocele, it was altered lymph, consequent upon pathological processes affecting primarily the lymph vascular system. In the cases of milk-like, fatty, and oily fluid found in the peritoneal cavity the character of the fluid was the result of coexisting degenerative processes. Quincke, Friedreich, and Klebs have reported cases of adipose or fatty dropsy connected with peritoneal and mesenteric cancer. In some of the cases, especially so in the puerperal, the naked-eye observation of the milky appearance of the fluid was the only circumstance upon which its chylous nature was based. In several of the tubercular cases the analysis established its fatty and oily character, but did not prove it to be chyle. Bergeret's case of oily ascites was associated with suppurating glands; in Hughes's case "cerebriform cancer" was present; and in one of Quincke's cases a cancerous nodule developed in the subcutaneous tissue at the point where the puncture was made to evacuate the fluid. In several of the cases abdominal tumors were found, but their nature was not determined.

The fluid in lymphocele is lymph, in rare instances but slightly altered, containing more water and less corpuscular element, but usually, and especially in the parasitic variety, so changed as to be comparable to chyle. It varies in color from that of ordinary lymph to a canary-yellow, but most frequently is a milky, chylous, opalescent fluid, and always possessing the property of spontaneous coagulation.

In either of the classes of effusion the fluid may contain blood, cholesterine, more or less of the common serous exudation, and some inflam-

matory product. The chylous effusions are rich in solid matter, albumen, fatty matters, chloride of sodium, and sometimes contain bile, sugar, phosphoric acid, lime, and other undetermined substances, also pus and blood. They are either chyle with moderate admixture of extraneous elements, or chyle-like with more or less chyle dilution with peritoneal effusion and lymph.

The appearance and chemical and microscopical composition of the fluid in chyle and chylous effusions are easily understood, but why the fluid in lymphocele and other lymphorrhagiæ, or found contained, either in a fluid or partially coagulated condition, in lymph-cysts, sacs, or developments, should so uniformly exhibit the appearances and physical and chemical properties of chyle, is not so susceptible of explanation. Numerous observations and analyses have been made of the fluids emitted in cases of lymphorrhœa and lymphorrhagia, and, with rare exceptions, it has been characterized as an opalescent, lacteous, or chylous fluid, rich in lymph-cells, albumin, and fatty matters, coagulating quickly and spontaneously. In all such cases lymph-stasis was the single condition uniformly present, and the alterations in the constitution of the lymph consisted chiefly in an increased proportion of fibrin, the addition of numerous cell elements, not unlike endothelial cells, white blood corpuscles, occasionally red blood-corpuscles, lymphoid cells, granular matters, a varying quantity of albumen, and fat.

Various theories have been suggested in explanation of this transformation of lymph. The theory of chyle regurgitation is altogether untenable. Buchanan maintains that the explanation of the white fibro-serous discharges must be sought "in the morbid activity of the multitude of epithelial cells, the function of which had become perverted," by which the fatty matter was eliminated from the blood. Petters offers the theory that the chyle-like fluids are due to fatty degeneration of the endothelium and other formed elements, and in the decomposition of protein substances, which processes are brought about by lymph-stasis. Carter insists that the fluid was chyle flowing in a retrograde current from the lacteals through vessels defective in anatomical construction and directly connected with enlarged lymph glands. Fetzer suggested the absorption by the lymph vessels of the fat tissue of contiguous parts. Roberts held that the structures which produced these discharges "were anatomically related to the lacteal and lymphatic tissues, which, in consequence of hypertrophic development, had acquired "the property and functions of the cells lining the lacteal ducts and glands." Sédillot attributed the milky appearance of the fluid in Vidal's case to the presence of an infinite number of zoösperms, but their presence has been disproven; and Gosselin expressed the belief that it was produced by a combination of the cholesterine and fatty constituents, but cholesterine has been but rarely found in such discharges. In view of the fact that the collections and

discharges of such milk-like or chyle-like lymphous fluids are so generally, if not always, associated with thrombosis, narrowing, dilatation, or occlusion of lymph channels, and lymph-stasis, the conclusion seems inevitable that they are pathological products.

The fluid in cases of fatty and oily ascites, associated with cancerous or tubercular diseases of the peritoneum or other abdominal viscera, is not necessarily a product of such morbid conditions, for in such cases the disease may invade the lymph and chyle vessels, and cause rupture or perforation. Perforations were found in the cases reported by Whitla and Straus; in the former the peritoneum was studded with tubercles, and in the latter it was cancerous. In Guttman's case the oily fluid was apparently the product of a chronic idiopathic peritonitis. In all cases in which the thoracic duct, lacteals, or lymph vessels are diseased the presumption is in favor of perforation and escape of chyle and lymph into the cavity. In a few cases complicated with peritoneal or visceral tuberculosis or carcinoma, the lymph and chyle vessels were normal. In such cases Debove maintains that fat is formed in the peritoneal cavity.

Treatment of Chylous Ascites.

In twenty-three of the fifty-three tabulated cases tapping was practised, and, in most of the cases, repeated several times. Six of these recovered. In two cases laparotomy was resorted to, with recovery of both patients. One was a case of an intact retention-cyst, and the other was, probably, a ruptured cyst. In the case of congenital cyst recovery took place after several tappings. In two of the cases of recovery, rupture of the umbilicus occurred with spontaneous evacuation of the fluid. The frequent resort to paracentesis was manifestly due to mistaken diagnosis. As a medical resource its value is questionable. The peritoneum is an enormous absorbing surface, which, in cases of moderate effusion unaccompanied with tension of the abdominal walls, might prove adequate for the reabsorption of the effused chyle and lymph. In cases of large accumulation, with its consecutive disturbances of the circulation and respiration, relief of the distention by the evacuation of fluid would be imperative, but it does not seem wise to empty the cavity completely of a nutritive fluid absorbable through such a vast area of lymphatic apparatus.

The treatment has mainly been directed to the prolongation of life, and Murphy suggests that in "cases due to rupture of a chyle-duct it should be rest in bed, with light diet of such foods as are digested and absorbed by the stomach, . . . given in small quantities at short intervals, and a restricted quantity of water and other liquids, the object being to prevent distention of the ruptured ends of the lacteals and the formation of a coagulum." This, together with a general tonic plan of

treatment, has, apparently, proven successful in at least two cases, and has certainly prolonged life in other cases.

The causative condition may, in some cases, be amenable to medicinal treatment; but in most cases, especially in those in which the effusion is attributable to the pressure of a benign tumor, some surgical procedure might offer a prospect of cure. In case of chylous cyst (50) removal is certainly justifiable.

In filarial cases the treatment applicable to such would be admissible. Guitéras asserts that patients "with filaria can hope for no permanent relief, except in the death of the adult worm. This happens occasionally, but cannot be brought about by treatment." Sonsino thinks some good may be accomplished in filarial diseases by the employment of astringents, such as gallic acid and the tincture of the chloride of iron together with rest, tonics, and proper alimentation, but that alimentation must not be pushed to the point of repletion and distention of the lymphatic vessels.

Lancereaux asserts that filariosis, a term which he applies to the parasitic forms of lymphatic diseases, is curable, though it may last for some time. He has found mercurial inunction in the region of the affected glands of service, in connection with hydropathy, and suggests the injection of parasiticides into the affected lymphatic ganglia to destroy the female adult worm. He, as do others, asserts that removal from the source of infection may result in spontaneous cure.

SOME OBSERVATIONS ON THE HEREDITARY FORM OF CHOREA, WITH THE REPORT OF A CASE.

By Theodore Diller, M.D.,
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Von Ziemssen,[1] in his comprehensive and exhaustive treatise on chorea, says, under the head of etiology: "Hereditary transmission does occur, but is certainly rare; but hereditary *tendency* to chorea, as to other diseases of the nervous system, . . . is very often demonstrable." He makes no further reference to the subject, except to quote Huntingdon's remarkable report,[2] in which there are related the records of several families living on Long Island, nearly all of the members of which were affected with chorea. Huntingdon and his father and grandfather together were able to trace a relationship between these families, and a direct hereditary transmission of the disease through

[1] Cyclopædia of the Practice of Medicine, vol. xiv. p. 423.
[2] Medical and Surgical Reporter, April 13, 1872.

several generations. In these cases the disease began between the ages of twenty and forty, attacking men and women alike. If a fortunate brother or sister of these choreics escaped the affliction, his or her children were also exempt.

W. P. Herringham,[1] in an admirable critical digest on "Chorea in the Adult and in the Old," says: "Chorea is not a common disease in persons after thirty years of age, and the records of it are scanty; but the term is used of so many different classes of illness, that it is worth while to arrange and classify the cases at present recorded." He makes four classes, or divisions, as follows:

First, chorea attacking elderly or old people, which is very similar to the disease of childhood in method of onset, symptoms, duration, etc. Rheumatism is less frequently an antecedent, and organic heart disease is not so common. Cases by Roger,[2] Russel,[3] Saundby,[4] Ferguson,[5] Graves,[6] and Gauthier[7] are cited.

The *second* group comprises those cases dependent upon a coarse subcortical lesion. They often follow, but sometimes precede, hemiplegia. The lesion is usually a patch of softening. Hemichoreics are the chief class in this group.

The *third*—and the class I wish especially to consider—comprises those cases of the disease first appearing in adult age and continuing for years—usually until death. Members of the same family are affected, and direct hereditary transmission is easily traceable. Huntingdon is accredited with the first description of such cases in 1872. Mention is made of reports of cases by Ewald,[8] Peretti,[9] King,[10] and others.[11] The case which I shall hereafter record belongs to this class.

The *fourth* group, as it concerns us but little, I will not consider, except to say that it comprises all the remaining cases of chorea in the adult and in the old which cannot be placed in any of the three preceding classes.

Herringham's classification, while it can be of little scientific use, in view of our present scanty knowledge of the pathology of chorea in the adult, yet is convenient, and serves a practical purpose. Hammond,[12] in his vast experience, has seen but four choreics in whom the disease began after thirty, and in none of them are we told there was a family

[1] Brain, April, 1888, p. 134.
[2] Gazette des Hôp., 1854, xxvii. 559.
[3] Medical Times and Gazette, 1879, ii. 447.
[4] Lancet, 1884, ii. 948.
[5] Lancet, 1885, ii. 92.
[6] Clinical Medicine, i. 537.
[7] Journ. de Méd. et Chir. Prat., 1881, 411, 66.
[8] Zeitschr. für klin. Med., vii., Supplement H, p. 51.
[9] Berliner klin. Wochenschr., 1885, No. 52.
[10] New York Medical Journal, 1885, i. 468.
[11] In a second critical digest (Brain, October, 1888, p. 415) Herringham gives a more extended consideration to this class of cases.
[12] Diseases of the Nervous System, p. 715, 6th edition.

history of chorea. With few exceptions, all the literature on the subject has sprung up since the date of the sixth edition of Hammond's book (1876).

Herringham, in his critical digest, made as late as last year, speaks of hereditary chorea as making the smallest of the four classes into which, we have seen, he divides chorea of the adult and of old age. A brief reference to reports of some cases which have come to my notice may, I trust, prove instructive.

Wharton Sinkler,[1] in discussing the subject, makes reference to Huntingdon's report of hereditary chorea as being the first. Clarence King,[2] in a valuable contribution to the subject, shows that mention was made of the hereditary chorea by C. O. Waters,[3] of Franklin, N. Y., as early as 1841, while Irving W. Lyon's[4] paper also antedates that of Huntingdon. In these cases, insanity and a tendency to suicide were common. I am unable to find reports of any cases between the years 1872, the date of Huntingdon's monograph, and 1881, when M. D. McLeod[5] makes an interesting contribution to the subject. He relates the cases of two sisters, admitted to the Cumberland and Westmoreland Asylum, Carlisle. These women had two brothers who were choreic. Their father also had had the "shaking disease" for many years before his death.

CASE I.—Isabella S., aged sixty-two, married, housewife, "peculiar" in disposition, admitted December 5, 1876, having been choreic for two years previous to that date. All muscles affected equally, apparently. Cessation of movements during sleep; mentally, irritable and childish. Physical health good. Short time before death twitchings became less frequent and intense on right than left side. Mental and physical powers gradually failed. Died August 19, 1880.

Autopsy.—Under dura of vertex and sides of left hemisphere there was a cyst lined with thick and dark-colored false membrane. The cyst extended over an area of brain comprising the posterior part of the frontal and whole of the parietal lobes of the left side; convolutions under this growth were depressed and flattened. Large gliomatous bodies on the choroid plexuses.

CASE II.—May B., widow, aged seventy-two, admitted September, 1879, sister of Isabella S. (Case I.). Chorea of two years' standing. Twitchings well-marked and general. No movements during sleep; great mental stupor. Paralysis of both legs. Died January 19, 1880.

Autopsy.—Several tumors in the texture of the dura mater; largest of them, about the size of a chestnut, was located in the upper part of the left hemisphere. Clustered around it were a number of small tumors, about the size of peas. They produced a distinct depression at the roots of the first and second frontal convolutions, and in the upper part of the ascending frontal and parietal convolutions, thinning, but not entirely destroying, the underlying cortical matter. The tumors were of hard, scirrhous nature; arteries atheromatous.

In several respects these cases differ from so-called "hereditary chorea," but, on the other hand, they show a far greater resemblance to that

[1] System of Medicine, Pepper, vol. v. p. 440.
[2] Medical News, July 13, 1889.
[3] Dunglison's Practice of Medicine, 3d edition.
[4] American Medical Times, December 19, 1863.
[5] Journal of Mental Science, July, 1881.

affection than they do to any other disease. If it were doubted that the father had chorea, would not the fact of the existence of the disease in the two brothers be strong presumptive evidence of heredity as a prominent etiological factor? I assume that they properly come under the head of "hereditary chorea." It seems remarkable, indeed, that in both cases such gross cortical irritants or destructive agents should have been found *post-mortem*. If these cases had been under medical observation in their beginnings, perhaps, too, it would have been noted in each case that the movements began on the side opposite to that of the brain upon which the growth was situated. Is it not likely that the disease affecting the two brothers of these women is also dependent upon a coarse lesion of the brain or its envelopes?

Ewald[1] records the instance of a family in which nine persons, representing three generations, were choreic. He also speaks of a mother, who, with her two daughters, was affected—the disease beginning in all cases after the age of thirty years. King has three times recorded cases of hereditary chorea. In his first report in 1885[2] he describes the disease which affected many members of one family in three generations. More or less insanity was noted in all these cases. December, 1886, he reports another case.[3] In July of the present year he makes a third report.[4] Mrs. C., who died of chorea at an advanced age (having been affected many years), had four children, only one of whom, Abel C., was affected with the disease; the other three children escaped, and none of their children developed chorea. Abel C. had six children, all of whom lived to have families. Two of his children, a son and a daughter, became affected. The son now is the father of two children who are said to show signs of the disease.

These cases would seem to be a strong corroboration of Huntingdon's law, that if one member of a family escape the affection the hereditary influence is stamped out in his branch of the family.

West gives a good description of a family of choreics. Huber[5] records a series of cases: A man, aged thirty-eight years, had been choreic eight years; movements exaggerated and universal. His sister, father, two paternal uncles and an aunt, and paternal grandfather and great-grandfather were affected.

Zacher[6] records a case of a man, aged forty-five years, who had developed the disease four years previously. He was committed to a hospital for the insane with the history that he had often abused his wife since

[1] Zeitschr. für klin. Med., vii., Supplement H, p. 51.
[2] New York Medical Journal, 1885, i. 468.
[3] Medical Press of Western New York.
[4] Medical News, July 13, 1889.
[5] Virchow's Archiv, Bd. cviii., H. 2, 267, 268.
[6] Neurol. Centralblatt, January 15, 1888.

the advent of his affection, and was subject to violent attacks of rage and excitement. Physical health was good; all muscles affected, and patient walked with great difficulty; speech was also much affected. By a strong effort of the will he was able to write his name. Entire quiet of muscles during sleep. The patient's grandfather was choreic, and transmitted the disease to one daughter and one son; his remaining child, a son, did not develop the affection. The daughter had seven children, three of whom had developed chorea—one of the three being the patient. In all the cases where a reliable history was obtainable it was found that the disease began between the ages of forty and forty-two years.

Hoffman[1] reports four cases under his observation—two brothers and a sister of one family, and a female cousin. They all developed the disease between the ages of thirty and forty years, except one who has had epilepsy since the age of two or three years, and who became choreic while yet attending school. The disease was shown to have run through four generations, attacking, in all, thirteen individuals.

None of the children of the fifth generation, all of whom are under twenty-four years of age, have yet developed the disease.

Lannois[2] reports cases of a brother and sister who inherited chorea, and adds a summary of cases already published.

Ducellier[3] gives a lucid description of a typical case.

Dr. Gershom H. Hill, Superintendent of the Iowa Hospital for the Insane, furnishes me with the following notes of a case of chorea under his care in that institution:

Mary S., aged fifty-five, married, but childless. Chorea began insidiously twelve years ago, and has steadily increased until she is now hardly able to walk, feed, or dress herself. Her mind has been affected for about two years. An uncle is choreic, and a brother is seriously threatened with the same disease.

From the hospital archives Dr. Hill has also given me notes of two additional cases:

Male patient: a case of dementia, admitted fifteen years ago, with history of having had chorea for a long time. He had wandered from home in the winter season, and as the result of this suffered from frozen feet. His feet were amputated, and he died a few days afterward from the effects of the operation.

Two years ago a brother of this man, aged forty, was admitted to the hospital, having been affected with chorea six years. He died of exhaustion, after a residence of twenty-one months in the institution. The history states that a sister of these two patients has been insane, but does not inform us as to whether or not she had chorea.

[1] Virchow's Archiv, cxi. 3, 513.
[2] Revue de Médecine, August 10, 1888.
[3] L'Encéphale, December, 1888.

For notes of the next case—one in the State Lunatic Asylum, Utica, N. Y.—I am indebted to the Superintendent, Dr. G. Adler Blumer:

Female, aged fifty-six, unmarried. Insanity began 1884, and was coincident with the appearance of chorea. On admission her mental condition was that of melancholia. She has since become somewhat demented. Chorea has gradually increased. Her mother and a maternal cousin had chorea. In the case of her mother chorea came on during the last years of life (a number of years after the birth of the patient). She has no heart trouble and never has had rheumatism.

I will now give the principal points of interest I was able to gather in a case under my care in this hospital:

Hannah B., aged forty-seven years, widow, mother of four children, ranging in ages from nine to twenty years, was admitted to this hospital July 9, 1888, on the usual certificates of insanity signed by two qualified practitioners.

Statement which accompanied the certificate recites that she had been "weak-minded," and affected with St. Vitus's dance for the past six or eight years; she had threatened to poison some of her neighbors, and also to take her own life; and on one occasion actually did attempt suicide by drowning. Her normal disposition, which was quite amiable, has become perverted, and she is now peevish, irritable, and querulous, prone to sudden and violent fits of anger. Often, too, she is very despondent, and during such periods she has threatened or attempted violence to herself and others.

Condition on admission.—Rather spare frame, a little above the average height; dark eyes and hair, dark complexion. Facial lines deep; expression somewhat melancholic. Presents the appearance of one enjoying fair physical health. No abnormalities of organs of respiration, circulation, digestion, or excretion are noted; appetite good. Choreic movements noted in face, neck, arms, legs, and trunk. When she is alone, sitting or lying down, there is great diminution in the intensity of the movements. On one occasion like this the muscles of the neck were the only ones which appeared to be disturbed. Mental excitement or physical exertion causes great exacerbation of her symptoms. The effort necessary in talking causes marked exaggeration of the movements; but they can, in a large measure, be controlled by an effort of the will. All movements are arrested during sleep.

Present condition.—Physical condition is rather improved upon that noted upon her admission. She is usually melancholic and disposed to rail at friends and authorities by whom she was placed here. It is not known that she has made any threats of suicide or homicide since her advent to the hospital; but she is restless, irritable and quarrelsome, and often provokes to anger the other patients in the ward. Effort of talking always greatly increases the movements. An attempt which she made to write her name proved a failure—the first letter being the only one which was legible. It is only by considerable effort she walks; several times has fallen.

Her appetite is apparently insatiable. She often provokes and angers the other patients in the dining-room by appropriating to her use food and drink intended for others. Although her liberal allowance of food

has been increased, her propensity for "foraging" among her neighbors is still apparently unabated.

Family history.—Our patient, the fourth child of her parents, has nine brothers and sisters—all of adult age, and four of whom are choreic—two sisters and two brothers. The father of these children, two paternal aunts, and two paternal uncles had the "shaking disease" for many years. Mrs. B.'s grandfather was also undoubtedly choreic.

One of Mrs. B.'s children had an attack of chorea at the age of eight, which lasted about two months. The child entirely recovered from this, which appears to have run the ordinary course of chorea of childhood. Mrs. B.'s uncles and aunts who were choreic all married and had children, but I was unable to ascertain that any of them inherited the family malady. None of the children of her four choreic brothers and sisters have developed the disease, but they are all under twenty-five years of age. To sum up: In one family we have eleven cases of chorea in three generations, or twelve cases in four generations if we include the case of Mrs. B.'s child, who, we have seen, developed the ordinary chorea of childhood.

This history I have verified from several sources, and as far as it goes I believe it to be entirely correct. The patient herself was able to give me a good deal of information, which was afterward corroborated by statements of a relative who visited her. The family is now scattered, and it is likely that there are members who are affected other than those here recorded.

I was unable to learn definitely the time of life at which the affection appeared in each of these cases, but in the instance of Mrs. B. it was at the age of forty, and I am inclined to believe that all or most of the others developed the disease at or about that time of life. In no case has a recovery ensued, but, on the other hand, they all tend to a progressive exaggeration of the disease. Various degrees of mental symptoms developed in most cases, from an undue irritability of temper to the degree represented by our patient, who is the only member of the family who has ever been in an insane asylum. The neurosis, however, does not appear to be incompatible with a fair degree of physical health, some of the members of the family having had the disease for many years prior to their deaths—in one case as long as twenty years.

Remarks.—An interesting and unique feature of the history of this family is the chorea which Mrs. B.'s child developed at the age of eight, and which apparently ran the ordinary course of the disease common in childhood. I am unable to find an instance similar to this in the writings of any of the authorities whom I have quoted in this paper. Would not a case like this be an argument against the views of those writers who maintain that chorea of old age, and especially "hereditary chorea" or "Huntingdon's disease," is essentially different from the affection seen in childhood—not because it is dependent upon a different morbid process, but because of the difference in clinical histories and in the durations of the two troubles?

The *Lancet* of August 17, 1888, in an editorial comment, says:

"Ordinary chorea is sometimes hereditary, but the disease called 'hereditary chorea' is, in many respects, different from the chorea of childhood. The

distinction . . . rests . . . rather upon the characteristics, and chiefly upon the time of life at which the diseases become prevalent, and upon their observed progress. Child chorea ever tends to get better . . . ; whereas hereditary chorea once established never ceases to exist. Hereditary chorea is frequently, child chorea is rarely, attended with marked mental chorea, if such a phrase may be allowed to signify the jerky, weak intellectual and moral actions of the sufferers."

This concise *résumé* is accurate in every statement, and while I readily subscribe to all it contains, I cannot see that there is adduced sufficient reason to warrant the invention of a "brand new" disease with half a dozen synonymous names.

PATHOLOGY.—I assume to be correct the theory, as promulgated by Hughlings-Jackson and Broadbent, that chorea of childhood is dependent upon certain changes or disturbances in the cerebrum. But the fact that small cerebral emboli have been found *post-mortem* in children who have had rheumatism, with endocarditis, does not prove that chorea of childhood is solely dependent upon this cause. Many cases have been recorded in which the hearts were healthy and where diligent search failed to discover any emboli in the brain.

In cases where emboli are found in the corpus striatum, or other parts of the brain, it seems a very plausible example of cause and effect. But how are we to account for those cases where a critical examination of the brain gives a negative result, or, at most, shows some excess of serum, or a slight meningitis?

Koch's theory is very inviting. He says there exists a choreic virus or blood dyscrasia, which in some cases produces chorea, in others rheumatism, and again in others both these affections.

The pathological records of cases of "hereditary chorea" are so meagre that we have but little opportunity to study the subject.

McLeod's report of the cases of two sisters affected with "hereditary chorea," in both of which gross lesions producing cortical pressure were found *post-mortem*, seems to me to afford food for much thought. Might not the father of these women have also suffered from a similar lesion, and transmitted to his children an hereditary tendency to intracranial growths? Perhaps it was syphilis. Certainly his nerve functions were weak. I am inclined to think that records of autopsies which will be made in the future will show that the affection is not dependent upon any one well-defined morbid process, but, like epilepsy, upon a variety of changes in the brain or its envelopes, all producing essentially the same motor disturbance. I believe, further, that the only difference between chorea of childhood and that of adult age and old age (including the hereditary variety), will be shown to be simply a difference in the length of time the causes operate, the effect on motor cells or tracts and the symptoms produced thereby being practically the same. A choreic virus, a blood dyscrasia, or a number of

minute emboli may soon disappear. The existence of these causes is too transient to produce an injury or "habit" from which the motor apparatus of the brain cannot recover. On the other hand, in adult age all diseases have a greater tendency to become chronic than they do in childhood. Gross brain lesions, such as those in McLeod's two cases, are a permanent and lasting cause; so is a clot—organized or broken down. Post-apoplectic choreics must be accounted for from this last cause. In some cases delicate chemical changes, or a fine general sclerosis, may be the permanent excitant or irritant. Here it might be difficult or impossible to demonstrate the changes, and then the disease would be said to be "functional."

Congenital chorea and cases where the disease began in childhood and continued many years, may be considered as arguments favoring the views I have here ventured to express.

Cases in which chorea and epilepsy exist in the same individual at the same time, or in which the one affection has followed or supplanted the other, are also instructive as bearing upon this subject.

Dr. C. B. Mayberry has under his care in this hospital a case of this kind:

A boy, aged sixteen years, has chorea alternating with epilepsy. He never has a fit during the time of the existence of the choreic movements. The choreic movements last from one to three weeks, and after an interval of about the same length of time, they will again become manifest. During this interval, epileptic fits are of frequent occurrence —ten or fifteen in a day having been noted. Fowler's solution has a marked effect in controlling both of these manifestations of motor explosions, as has also bromide, though in a much less degree.

The diseases of the motor apparatus of the brain are not always so clearly defined and distinct from each other, either in morbid anatomy, symptoms, or course, as some authorities would lead us to believe; but on the contrary, are often so associated with each other that a precise diagnosis is difficult or impossible.

Would it not, then, be better to group and classify these diseases, and thus work in a broader and more comprehensive way, rather than to make artificial distinctions, with the consequent multiplication of names and synonyms? Let us not, at present, make two diseases out of chorea, but simply call each a *variety* of the same affection—at least until we have added much more to our knowledge of this interesting neurosis.

A CASE OF URTICARIA PIGMENTOSA.

By Henry W. Stelwagon, M.D.,
of Philadelphia.

In looking over the literature of urticaria pigmentosa the impression was forced upon me that there was in almost all the published cases a marked similarity in the objective phenomena: the subjective symptom of itching was found, it is true, somewhat variable, and in a few cases, as in that about to be reported, practically *nil*. Itching is to be considered as almost a *sine qua non* of urticaria, and this is always of an annoying character. Indeed, in studying the cases of urticaria pigmentosa carefully, I am constrained to confess that while many of the symptoms point to a close resemblance to true urticaria, in other respects they are so different that as yet their identity can by no means be admitted. This impression is further strengthened by the fact that these anomalous cases stand so prominently divided from simple urticaria, that midway cases (if the expression may be allowed) are not encountered—it is either urticaria, with its evanescent and characteristic wheals, etc., or it is urticaria pigmentosa with its usual symptoms. This sharp division is not in accord with our experience in other cutaneous diseases. The following brief notes, therefore, I wish to put on record, so as, perhaps, to add something to the final status of these cases.

The patient, a boy of six years, came under my notice in the early part of last February. He was a blond, of robust physique, and in perfect health. In fact, no departure from health could be elicited other than the skin eruption for which advice was sought. The parents were also free from disease. In earlier life, and also in the summer preceding the patient's birth, the mother had had urticarial attacks of the usual evanescent type, and due to dietetic indiscretions. The boy's sister, the only other child, had always been free from any cutaneous disease.

The eruption began, as the father stated, after two unsuccessful attempts at vaccination, when the boy was eighteen months old. Since that time, a period of four and a half years, the disease had continued uninterruptedly. The eruption appeared without any attempt at regularity, new lesions, few or in numbers, making their appearance from time to time. The covered regions of the body were the parts upon which the spots were most abundant. Lately, however, there had been a strong disposition to appear on the face, and it was this disfigurement chiefly that had made the parents solicitous of remedial help. The lesions had always been numerous about the neck, sides of the trunk, and about the genitalia; until recently comparatively few had been on the limbs and face. The eruption has been active ever

[1] Read at the Thirteenth Annual Meeting of the American Dermatological Association, September 18, 1889.

since its first appearance, the older lesions eventually disappearing without leaving a trace. Itching had never been a troublesome symptom.

At the time of examination the eruption was found to be more or less general, being most abundant on the lateral portions of the chest and abdomen, on the neck, on the under part of the lower jaw, on the forehead and temples, on the back of the neck well up to the post-aural regions, and to a less extent on the arms and legs. On the face proper there were comparatively few. The eruption consisted of pin-head to large pea-sized rounded, some elongate, reddish-yellow, papule-like elevations; many similar elevations surmounted with a small vesicle with a somewhat thick and light-yellowish epidermal covering; flattened, elevated, small and large pea-sized yellowish or salmon-colored lesions; small spots of pale-yellowish pigmentation, with slight, if any, elevation; spots of similar size, of the color approaching the normal skin, with possibly a yellowish tinge, over which the epiderm appeared slightly loose and wrinkled, and in some the follicular outlets seemed enlarged, giving the appearance faintly similar to the slight atrophy which follows lupus erythematosus. Some of the retrogressing lesions, those which were still somewhat elevated, bore a slight resemblance to both lupus deposits and to xanthoma. The most prominent color was yellow, somewhat on the salmon. In the early life of a lesion, however, a reddish tint was probably the more noticeable. The first appearance of a lesion was, in fact, somewhat similar to the wheal of an ordinary urticaria, although smaller and less inflammatory. Such beginning lesions were to a slight degree itchy, but this was evanescent and never marked or persistent. The skin on being rubbed exhibited a slight tendency to become urticarial.

This was, in brief, the extent and character of the eruption when first seen, and it may here be added also that in the examinations made subsequently the same essential phenomena presented. The lesions, no doubt, finally disappeared, probably in the course of months, without leaving a trace; at least this must be inferred from the fact that the disease had already lasted four and a half years, with continuous outbreak of new lesions, and yet with so comparatively few of the atrophic-looking and the freckle-like spots remaining. These last-named would undoubtedly give place to normal skin. The fact of the total disappearance of the lesions the father also attested.

An observation extending over some weeks showed the eruption in its formation and evolution as follows: The lesions began as small rounded, solid elevations, reddish-yellow in color, developing suddenly or in the course of several hours or days. On many of these a more or less perfect attempt at vesiculation occurs. The vesicle is small and the epidermal covering thick, giving the vesicle a yellowish color, although the contents remain clear and purely serous. The vesicle disappears by absorption. The spots, as a rule, become a trifle larger, after they are apparently fully developed; they flatten out, and then look like flat, pea-sized yellowish or yellow-brown maculo-papules, being a part apparently of the skin itself; suggesting in some respects a slightly elevated hairless pigmented nævus, and in other respects a superficial flattened xanthoma. Still further flattening gradually takes place, and the

epidermis covering the lesion assumes a slightly loose or wrinkled appearance, in some with a tendency toward thinning or atrophy, with also an apparent, and probably true, enlargement of the follicular outlets, suggesting, as already remarked, a faint resemblance to the sieve-like atrophy of lupus erythematosus. These characters—the atrophic and wrinkled appearance and the enlargement of the follicular orifices—could only be seen, however, by close inspection, and were not, therefore, in the slightest degree striking or conspicuous. Indeed, unless the skin were carefully examined these later changes would entirely escape observation. Nor were these characters an essential part of each disappearing lesion. Many spots apparently disappeared without this preliminary atrophy taking place. Whether atrophic or otherwise, however, no permanent trace of the eruption was left, the skin finally assuming its natural condition and color. These several stages—the formation, evolution, and disappearance of a lesion—required weeks, and doubtless in some lesions months. As it was, unfortunately, impossible to gain the parents' permission to excise a lesion, no microscopical examination could be made.

A few words as to treatment. In the reported cases of this disease treatment, except the partial relief to the itching by external applications, was practically negative, and the same may be said indeed in regard to the case here given. Treatment is essentially theoretical and experimental, and must necessarily remain so as long as the nature of the disease and its underlying causes are unrecognized. Before coming under my observation this boy had been variously treated, in one instance taking fair doses of arsenic continuously for several months, but without the slightest effect upon the eruption. With the idea of possibly influencing the vaso-motor nerves and indirectly the disease, the fluid extract of ergot was prescribed, at first in ten minim doses t. d., later increased to twenty minims, and the same was continued for five weeks, but the condition was in no way modified or improved, the older lesions gradually changing as formerly and new lesions appearing from day to day and week to week. This was now discontinued, and the phosphates in combination with cod-liver oil given as a nutrient tonic. I may add that there was no other indication for this than that the boy was of the appearance and complexion so common to strumous subjects, who while presenting a tolerably robust appearance are lacking in nervous tone and muscular vigor. At the end of a month the disease appeared less active, but this was in all probability, however, independent of treatment, as not infrequently before, so the father stated, there had been times when the disease was comparatively quiescent. The same remedies, with the addition of a small tonic dose of arsenic were continued, and so far as I have been able to learn this treatment was followed for several weeks longer, but as it was without further appreciable effect, was discontinued, and other advice sought.

REVIEWS.

ANÆSTHETICS, ANCIENT AND MODERN: THEIR PHYSIOLOGICAL ACTION, THERAPEUTIC USE, AND MODE OF ADMINISTRATION; TOGETHER WITH AN HISTORICAL RÉSUMÉ OF THE INTRODUCTION OF MODERN ANÆSTHETICS—NITROUS OXIDE, ETHER, CHLOROFORM, AND COCAINE; AND ALSO AN ACCOUNT OF THE MORE CELEBRATED ANÆSTHETICS IN USE FROM THE EARLIEST TIMES TO THE DISCOVERY OF NITROUS OXIDE. By GEORGE FOY, F.R.C.S. London, 1889.

THE title and the dedication of this book are both good. The first is given above; the second is to Hunter McGuire, not only as a token of personal friendship, but as a just tribute to one "whose numerous brilliant and successful operations have made his name honored and esteemed in two hemispheres."

An examination of the body of the work shows it to consist of one hundred and fifty pages. Of these, about twenty are devoted to cocaine, fifteen to the scarcely used anæsthetics, such as methylene, ethylene, amylene, and others, and ten pages are occupied with cuts of inhalers and apparatus. It is needless to say that an attempt to consider the subjects of the title-page in the remaining space could but result in failure for the author and disappointment for the reader.

The work is sharply divided into two portions, historical and practical. In the former are some curious gleanings, and it shows wide reading and a study *con amore*. Why, however, a case of early inhalation of nitrous oxide gas should be given, occupying two pages, which shows only the production of *unconsciousness*, or what bearing it has upon the discovery of the anæsthetic effect of that gas, we cannot imagine. On page 23 we find the following paragraph:

> "To Faraday, however, may be credited the recognition of the value of ether as a surgical remedy; in 1818 he showed that the vapor of sulphuric ether, when inhaled, produced anæsthetic effects similar to those produced by nitrous oxide gas."

Surely so important a statement, one so sweeping in its changes of history, should be sustained by quotation from Faraday's works. There is none, and not even a reference to the sources upon which the statement is made, although the book abounds in quotations and foot-notes.

We also challenge the statement (p. 103), that to late independent workers "we are principally indebted for our modern views of the physiological action of anæsthetics, and the best means of avoiding danger during their use." The name of John Snow does not occur in the book, nor is there a reference to his work, 1858, which was at once pioneer, almost exhaustive, and scientific. But few things on the points mentioned have been added since his day.

Coming to the practical or clinical portion of the book, we find the author an advocate of chloroform as against ether. He does not display any partisanship, but it is plain from the greater attention paid to the one than to the other. Supposing the conditions present suitable for the administration of ether, he says, "there can be no objection to chloroform;" and "there are no cases in which ether may be used that chloroform is not equally suitable." How much it is to be regretted that just here the author had not looked through the files of the leading British journals for a few years past. He would have found the announcement of "a death from chloroform" so frequently that we are sure these statements would have been modified.

The origin of the A.-C.-E. mixture is fully and correctly given by quotation from the report of the Committee of the Royal Medico-Chirurgical Society, 1864. But no information is furnished as to probable frequency of administration of this combination in the author's country, no statement for the benefit of the student of the advantages claimed for it over ether or chloroform given alone. No mention is made of the Vienna mixture, with which Billroth has had large experience and no disaster, although two pages are devoted to the administration of chloroform and oxygen gas.

The important subject of mixed anæsthesia by a preceding injection of morphine occupies less than a page; while nothing is said of the addition of atropine. This procedure is spoken of as "once strongly advocated," and that it has now fallen "into disrepute and is rarely resorted to." Both theoretically and practically, so far as it has been carried, this is one of the most important modifications of the process of artificial anæsthesia. It has the firm support of experiment on animals and clinical experience, and we believe its use is extending, although more gradually than it deserves to be. In the author's references to Bernard, the one who first placed this method on a scientific basis, there is none to his *Lecons sur l'Asphyxie et les Anæsthetiques*, in which may be found facts which would compel a far stronger presentation of the method.

Looking carefully for original work, for additions to our knowledge, it is difficult to find any. The author has seen a death under chloroform "from the administration of too concentrated a vapor"—a cause which has frequently caused the fatal result—yet he does not give the particulars of even this, but merely mentions it. We except from the general statement above the presentation (pp. 101, 102) of the number of administrations of the individual anæsthetics at St. Bartholomew's Hospital for three years. This is so interesting and valuable that we give it, as the book will be seen by but few of our readers:

	Chloroform.	Ether.	N. O. Gas.	Ether preceded by N. O. Gas.	Deaths.
1885	1331	1118	378	386	0
1886	1425	1109	385	567	1
1887	1702	1197	415	662	1

Even this is incomplete, from failure to state under which anæsthetic the death of 1887 occurred. That of 1886 was from chloroform.

We regret that we cannot speak more favorably of a little work which is evidently the result of a great deal of labor and study. But the duty of informing our readers as to the scope and character of new works upon this subject will not permit it. As before said, the subjects could

not possibly be considered in the number of pages occupied; there is a hydrocephalic disproportion between the head and the body. The administration of nitrous oxide for dental purposes is not touched upon; the medico-legal relations of anæsthetics are given in six lines on erotic manifestations, and their obstetrical uses are not mentioned.

THE CAUSES AND TREATMENT OF ABORTION. By ROBERT REID RENTOUL, M.D., L.R.C.P. Ed. With an introduction by LAWSON TAIT, F.R.C.S. Two colored plates and thirty-five engravings. 8vo., pp. xiv., 271. Edinburgh and London: Young J. Pentland, 1889.

THE subject of this essay is an attractive one. The field has not been overworked in the light of modern knowledge, and its importance is apparent to every one who knows that about one-fifth of all conceptions fail to produce a living infant, that one-fifth of all pregnant women must expect their condition to be prematurely, unnaturally terminated, and who realizes the loss to the community, the danger to woman's health and life, involved in this enormous mortality of the embryo and fœtus.

It is disappointing to find that the work under review fails to meet the expectation which its title must arouse. The book is introduced to the public by a laudatory note from Lawson Tait. The choice of the endorser is unfortunate. Mr. Tait is distinguished as a practical operator, but is certainly not widely known for his extensive acquaintance with obstetrical literature or pathology. Mr. Tait's assertion that "I have seen nothing better in the English language," and "the clearness of its expression as well as the precision of its conclusions places it far above the kind of productions with which we are favored in most other languages than our own," will be disputed by every intelligent and educated physician who will read the book.

There is nothing new of scientific value, and the style is discursive, far from clear, and in places exceedingly slovenly. For instance, see the sentences "Martin and Fourcauld have described the cervix as being enlarged, congested, and indurated, and accompanied by ulceration" (p. 36), and "The bleeding which comes from a congested condition of the os" (!) (p. 39). In the sections on pathology and development, especially of the decidua, erroneous statements are advanced. A ludicrous mistake is made upon page 45: the effect of malaria in the pregnant woman is said to be a reduction in the fœtal weight on the average of 5000 grammes! Thus does this fell disorder crush the unfortunate infant within the womb to an impalpable essence of—1750 grammes in weight. On page 124 the astonishing assertion is advanced that the fœtus may suffer from worms.

The proof-reading has been carelessly done: material appears for maternal, Wagner for Wegner, and Dolores for Doléris. The book has some good features. The author displays creditable industry in collecting facts of interest and importance from other sources. The paper is good, the type clear, and the illustrations in the main excellent, although some of the figures are indistinct, notably Nos. 4 and 5. B. C. H.

AN ESSAY ON ASPHYXIA (APNŒA). By GEORGE JOHNSON, M.D., F.R.C.P., F.R.S., Emeritus Professor of Clinical Medicine; Consulting Physician to King's College Hospital; Physician Extraordinary to Her Majesty the Queen. 8vo., pp. xi., 53. London: J. & A. Churchill, 1889.

DR. JOHNSON'S essay, though mainly a restatement of views previously expressed, is a timely and valuable contribution to the literature of an important subject, inasmuch as the author finds it necessary to take direct exception to statements authoritatively made by such modern writers on physiology and forensic medicine as Klein, Burdon Sanderson, Lauder Brunton, Michael Foster, Gerald Yeo, Landois and Stirling, and the editors of late editions of Carpenter and of Taylor. The point at issue is one which seemingly hinges upon a simple matter of observation about which no doubt could exist. The older physiologists, among whom Dr. Johnson enumerates Harvey, state that after death by suffocation the right heart and its tributaries, as well as the pulmonary artery and its branches, are found engorged with blood, while the pulmonary veins and the left heart, together with the aorta, are empty or nearly so. The later writers, on the contrary, either describe an equal engorgement of both sides of the heart, or account for the emptiness of the left side as the effect of contractions due to *rigor mortis*.

Dr. Johnson, adhering to the older view, and supporting his opinion by the carefully detailed experiments of John Reid, and those conducted for himself by Rutherford, explains the phenomena of apnœa on the theory of a spasmodic contraction of the smaller arterioles in the lungs, brought about by the irritation of the carbonized blood; which contraction shuts off the blood-current from the pulmonary capillaries and all channels beyond them. That the arrest of circulation cannot occur in the capillaries, he considers proved by the demonstrated absence from the capillaries of the muscular "stopcock" apparatus. As to Dr. Foster's experiments, he thinks that this observer may have been led astray by the interference of the paralyzing effect of an overdose of curara with the normal sequence of phenomena. He refers to the phenomena of nitrous oxide anæsthesia, and the conditions observed after death from nitrous oxide, as confirmatory of his views.

The practical importance of establishing the truth of Dr Johnson's theory lies not only in the more intelligent application of proper means for resuscitation in cases of threatened or apparent death from apnœa; but also in the light it throws upon certain pathological phenomena. Thus the arrested circulation through the lungs in choleraic collapse is attributed to contraction of the pulmonary arterioles excited by the virus of the disease. This, and not deprivation of fluid, is looked upon as the essential feature of the morbid state. In Bright's disease, as long ago pointed out by Johnson, in Raynaud's disease, and in the study of the pulse in various affections, the recognition of spasmodic contraction of the muscular arterioles may throw light upon imperfectly understood processes and afford important hints in therapy. The distinction which the author so properly insists upon, between *asphyxia* or *pulse*lessness, and *apnœa* or *breath*lessness, should be constantly borne in mind, and would obviate considerable confusion. One result of Johnson's

labors will be to increase the intelligent therapeutic employment of nitroglycerine and its congeners, in combating conditions which can be referred to this stopcock action of the arterioles. S. S. C.

GYNECOLOGICAL ELECTRO-THERAPEUTICS. By HORATIO R. BIGELOW, M.D., Permanent Member of the American Medical Association, etc. With an Introduction by DR. GEORGES APOSTOLI. With illustrations. 8vo., pp. xliv., 199. London: H. K. Lewis, 1889.

DR. BIGELOW's name is not an unfamiliar one in gynecological literature, and his numerous contributions during his prolonged stay in foreign parts are ample testimony that he has been no idler while there. In the present work nothing new or original must be expected—indeed, Dr. Bigelow admits that it is only a compilation. He adds: "If it be a good one and serve a useful purpose, I am amply repaid." In so far as being a readable book is concerned, it is a fairly good one, though it is very vulnerable.

It is questionable whether in a gynecological work it is well to introduce much that is to be found in the first three chapters, especially the abstruse mathematical formulæ and calculations. Apostoli himself is authority for making the physics of the subject as elementary and practical as possible. Aside from this the book is made up almost entirely of selections from Apostoli's writings, including an analytical introduction by him of thirty pages. Dr. Bigelow is too modest, after his rich experience, in saying "It would have been mere impertinence for me to obtrude my own unformed ideas upon men anxious to learn." We are reduced, therefore, to the necessity of criticising Apostoli rather than Bigelow.

In the first place, we believe that spirit of narrowness and prejudice should be rebuked which sees naught but evil in electricity and Apostoli, *et id omne genus*. There is a style of writing and criticism too rife in certain high gynecological circles which forgets the fair and courteous treatment ever due an opponent, a brusqueness and savageness of expression which, because backed by brains and skill, is tolerated or even smiled at, but which is unpardonable nevertheless. Shafts of this kind without number have been fired at gynecological electro-therapeutics, and Apostoli, and any one else who happened to agree with him. Fortunately that kind of argument is not convincing to a really serious mind. On the other hand, while recognizing the great merit of Apostoli in popularizing the use of electricity, and patiently and courteously pursuing his work in open day, we think he asserts too much as to the therapeutic value of electricity in gynecology, minimizing its possible dangers and never abounding in modesty in his claims as to his share in the development of the subject. He must not ask us to forget or ignore the pioneer work of Cutter, Semeleder, and Tripier in this field, and he should remember that as he has improved upon their methods and armamentaria, others have improved and will improve upon his. For example, on page 77 we have Apostoli's words as follows: "The abdominal electrode of Franklin Martin, of Chicago, is the best I have met with and will perhaps be adopted."

We are not prepared, either, to accept all his physical theories—for example, as to the polarizing action of the galvanic current upon tissues, and subsequent interpolar action (page 69). Certainly there may be polarization, the galvanometer shows that by the deviation of the needle in the direction opposite to that in which it has been deflecting, but to quote Apostoli's own words again (page 141) this is "a deviation which is slight, it is true, and of little intensity." If such a secondary current were of more than momentary activity in the tissues, would not its prolonged presence be indicated by the galvanometer? Again, as to the effects of the scar in intra-uterine cauterization: if the decomposition of the battery fluid effected by electrolysis attracts acids to the locality of the positive electrode, resulting in a scar, why should it differ in character and in consequences from the scar produced by acids of a similar character deposited in the same locality by other means? We do not refer now to any physiological effect which may attend the passage of the electrolytic current. That the galvanic current will stop bleeding we have frequently proven; that it will ease pain we are certain; that it, or the faradic current, will greatly improve the nutrition of relaxed and flabby and anæmic pelvic organs we have demonstrated, and there are numerous other indications which have been pointed out by Apostoli, Engelmann, Franklin Martin, and others.

Tutissimus in medias vias, and this was shown by the discussion of this subject at the recent meeting of the American Gynecological Society by men who were well calculated by experience to speak intelligently thereon. And so in, spite of Apostoli and the good work which he is doing, the time is not yet at hand for us to throw away our scalpels, our pots of iodine and glycerine, our tampons of cotton, our curettes, and our vaginal douching apparatus, but we are watching him without prejudice, eager for *fair play*, and for the best that he can give us.

A. F. C.

PRACTICUM DER PATHOLOGISCHEN HISTOLOGIE. LEITFADEN FÜR STUDIRENDE UND AERZTE. Von DR. OSKAR ISRAEL, I. Anatomischem Assistenten am Pathologischen Institut und Privat-docenten an der Universität zu Berlin. Mit 133 Abbildungen in Text und einer Lichtdrucktafel. 8vo., pp. xiv., 390. Berlin: August Hirschwald, 1889.

A PRACTICAL TREATISE ON PATHOLOGICAL HISTOLOGY. INTENDED AS A GUIDE FOR STUDENTS AND PHYSICIANS. By DR. OSKAR ISRAEL. First Assistant in Anatomy at the Pathological Institute and Privatdocent at the University of Berlin. With 133 Illustrations and a Photographic Plate.

THIS is an excellent work by a thoroughly competent observer. As implied by its name, it is intended as an introduction to the study of pathological histology and this intention is well carried out; but this does not prevent its containing a large amount of information of great value to the advanced student of this science. The explanations of the various most approved methods of hardening, cutting, and mounting microscopical preparations—the technique, as it is called—are concise and yet complete, while the abundant illustrations are beyond all praise. The work is a valuable addition to the literature of pathological histology.

F. P. H.

DER CATARRH DES RECESSUS PHARYNGEUS MEDIUS; SEINE BEDEUTUNG UND VEREINFACHTE CHIRURGISCHE BEHANDLUNG. Von DR. R. KAFEMANN.

CATARRH OF THE MEDIAN PHARYNGEAL RECESS. ITS SIGNIFICANCE AND ITS SIMPLE SURGICAL TREATMENT. By DR. R. KAFEMANN. Wiesbaden, 1888.

KAFEMANN presents a careful summary of the conflicting views concerning the disputed *bursa pharyngea;* ranging himself among those who find it to be nothing more than a median fissure in the mass of lymphoid nodules at the vault of the pharynx, best known as the pharyngeal tonsil (Luschka). His treatment of catarrhal disease of this structure, by which he claims to secure radical cure, consists in thorough scraping of the tissue with sharp spoons, followed immediately by applications of silver nitrate or of chromic acid molten upon the end of a silver probe. A number of cases are reported in support of his claims. J. S. C.

OEUVRES COMPLÈTES DE J. M. CHARCOT. MALADIES DES POUMONS ET DU SYSTÈME VASCULAIRE. Tome v. 8vo., pp. 652. Paris: Aux Bureaux du Progrès Médical, 1888.

COMPLETE WORKS OF J. M. CHARCOT. DISEASES OF THE LUNGS AND VASCULAR SYSTEM. Volume v. Paris, 1888.

As admitted by the editor of this volume, who signs himself simply Bourneville, this work, which contains the lectures and other writings of Charcot on the diseases of the lungs, the blood, the heart, and the vessels, is chiefly of historical interest. This is apparent from the facts that some of the observations were published thirty years ago and that the lectures were delivered in 1877.

Prof. Charcot is known throughout the civilized world as occupying the first rank as a specialist in the diseases of the nervous system, and it is evident, from these writings, that he has attained that rank by an almost exclusive devotion to his specialty. Doubtless there are many admirers of this great teacher who will be glad to possess a complete set of his writings, but we cannot advise any one to purchase this fifth volume for the sake of obtaining information of present value on the subjects of which it treats. Its interest is purely historical, literary, and personal. F. P. H.

OBSERVATIONS ON SOME RARE DISEASES OF THE SKIN. By J. F. PAYNE, M.D. Oxon. F.R.C.P. Lond.; Physician to St. Thomas's Hospital, etc. 8vo., pp. 51. London: Smith, Elder & Co., 1889.

THE diseases considered in this small volume are granuloma fungoides, erythrasma, beaded hair, and pruritus hiemalis. These several papers have already been published in Society Transactions or in current litera-

ture, but are here reprinted with considerable additions. Four plates accompany the text: two colored plates, descriptive of the clinical aspects of granuloma fungoides; one plate with several cuts devoted to the pathological histology of the same disease; one plate with nine cuts showing the fungus of erythrasma and specimens of beaded hair.

H. W. S.

A Guide to the Instruments and Appliances Required in Various Operations. By A. W. Mayo Robson. 18mo., pp. 60. London: J. & A. Churchill.

This little work will fill a long-felt want in the hands of operators, assistants, nurses, and others who are called upon to prepare for surgical procedures, and will also assist the surgeon in giving his instructions. It is a compact, neatly printed, pocket-sized book, with the instruments of every imaginable operation arranged so that one can select them at a glance, and can be sure of avoiding those lapses of memory by which sometimes important instruments or appliances may be forgotten. As surgeons differ somewhat in the choice of their instruments, a space is left at the end of each list for additions. We can heartily recommend it as a useful aid to the surgeon in his operative work.

Leprosy—An Imperial Danger. By H. P. Wright, M.A., Rector of Greatham, Hants, etc. 12mo., pp. 127. London: J. & A. Churchill, 1889.

The author is evidently a thorough believer in the contagiousness of leprosy, and strongly urges segregation as necessary to prevent possible future epidemics. Facts and arguments are collected from all sources, and so arranged and arrayed as to carry, if reliable, great weight. Apparently a spirit of honesty pervades the whole text, although it receives the high coloring to be expected from a lay author. It is probably as strong a presentation of the subject as could be prepared by a non-medical writer. Whilst doubtless intending to be fair and moderate in his descriptions and assertions, it is possible that the author has permitted his strong prejudice to cloud his vision and obscure his judgment. For instance, in referring to the existence of leprosy in this country, on page 108 is found: "If we leave the city (New Orleans) of the south of the United States, and make for the city of cities, Philadelphia, there also leprosy has been, within the last few months, very active." This is, to say the least, misleading language to apply to the presence of the three accidental cases shown by Van Harlingen before the County Society a year or so ago. Such perverted statement, although probably unintentional, is apt, indeed, to discredit what may in every other particular be a truthful and painstaking labor. H. W. S.

PROGRESS

OF

MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF

FRANCIS H. WILLIAMS, M.D.,
ASSISTANT PROFESSOR OF THERAPEUTICS IN HARVARD UNIVERSITY.

Chloramide.

Dr. Kny, of Strasburg, has made a careful study of the action of chloramide, beginning with observations of its influence upon animals. He found that it exerted a marked hypnotic action upon rabbits without exciting any undesirable symptoms; experiments were also made to test the extent of its influence upon the circulation. Since chloral is known to have a depressing action on the heart, Dr. Kny determined to compare the action of these two hypnotics upon the circulation. He found that the blood-pressure was but little diminished, compared with the marked depression caused by chloral, and he inferred that chloramide has but a slight influence upon the heart.

After such a preliminary study of the drug it was used upon patients suffering from insomnia, and in such cases as had already obtained relief from chloral. It is not so energetic a hypnotic as chloral; they are related to each other in about the proportion of thirty grains of chloral to forty-five grains of chloramide. Beside having the larger dose (both of those given are maximum doses), chloramide is the more deliberate in producing sleep. On the average, sleep follows in about half an hour, while with chloral it comes on in about fifteen minutes. The sleep from chloramide is deeper and more refreshing; its duration varies from six to ten hours. The patient rises in the morning with a clear head and free from digestive disturbance. It is a far less irritating substance than chloral, is free from any disagreeable taste, and, what is of more importance, has far less action on the heart.

Chloramide is thought to be decomposed in the blood into chloral and formamide, as large amounts of uro-chloralic acid were found in the urine of a dog which had taken 180 grains of chloramide. The slight action of the drug upon the circulation is explained upon two grounds: that the chloramide is decomposed in the blood so slowly that only a small quantity of chloral is active at any given moment, and that the formamide, in common

with all other members of the NH_2 group, is a stimulant to the vaso-motor centre in the medulla, and thus acts to raise the blood-pressure. Dr. Kny finds that patients prefer chloramide to sulphonal, which is much slower in its action, though in special cases sulphonal may possibly be found more suitable than chloramide.—*Therapeutische Monatshefte*, August, 1889.

After using chloramide as a hypnotic in sixteen cases, DR. LETTOW is of the opinion that we have in this drug a useful, though not always certain, hypnotic. It has no action on the pulse, respiration, or temperature, and is to be preferred to some others of its class; the unpleasant accompaniments are slight headache and dizziness, but these symptoms do not often occur. It is best given one to one and a half hours before retiring, and in an enema.—*Wiener medizinische Presse*, No. 38, 1889.

CHIMAPHILA UMBELLATA AS A DIURETIC.

ABET, an interne of Cochin Hospital, has been experimenting with this old diuretic herb in that hospital. He has tried the decoction, the infusion, the tincture, and other fluid preparations; lastly, the soft hydro-alcoholic extract, only to recognize the superiority of the latter over all other preparations. The hydro-alcoholic extract is made thus: Ten ounces of pipaissewa leaves are exhausted with alcohol at 90°, and a soft alcoholic extract is got by evaporation and concentration. The leaves that had been acted upon by the alcohol are now steeped for two hours in two quarts of water; the whole is then cooled and filtered. To this filtered liquid is now added the alcoholic extract, and after all the soluble parts are extracted the whole is again filtered, and the filtrate is evaporated in a sea-bath down to the consistence of a soft extract. Ten ounces of the powdered leaves yield about three ounces of extract. This extract is given in doses amounting to from two to four drachms a day.

The formula in which the drug may be given is as follows:

Soft hydro-alcoholic extract of chimaphila . .	ʒijss to ʒiv.
Syrup of orange	ʒj.
Rum	ʒijss.
Water	ʒiij.

Of this preparation, a tablespoonful is given every two hours.

Experiments on animals proved that the chimaphila was not poisonous in any dose. Abet himself ingested an ounce and a half of the soft extract without experiencing any bad results. Eleven patients in the hospital were treated by this diuretic preparation. All were cardiac patients with œdema and dyspnœa, who were passing very little urine. The medicine worked well in all these cases but one; this patient was influenced by no diuretic but digitalis. The diuresis in some of these patients amounted to five quarts of urine in twenty-four hours. They took daily in potion for a month and a half from two and a half to three and three-quarters drachms of the extract. The diuresis in all cases began with the second day, and remained at this maximum till there was complete disappearance of the œdema, when the quantity of urine fell to normal.

The chimaphila seemed to have no special action on the heart.—*Boston Medical and Surgical Journal*, October 10, 1889.

Exalgine.

Exalgine is the name given to a new derivative of the aromatic series, orthomethylacetanilid, discovered by Brigonnet, of the Cochin Hospital, and which has suddenly leaped into extraordinary favor as an analgesic in France.

It occurs either in fine acicular or long tablet-like crystals. It is sparingly soluble in cold water, more soluble in hot water, and extremely soluble in very dilute alcohol, or in water slightly alcoholated. Physiologically, it acts very much like analgesine, having, however, more effect upon the sensory and less upon the thermogenetic centres than this substance. Its therapeutic effects are obtained in doses of from four to six grains, administered at once, or from six to twelve grains taken in two doses in the course of twenty-four hours, and are powerfully analgesic, subduing the element of pain in all forms of neuralgia, including visceral.

Like all new remedies of this sort, it is at present on its good behavior, and it is claimed by Drs. Dujardin-Beaumetz and G. Bardet that it has in their hands, up to the present time, exhibited no evil sequelæ, being free from the rash, cyanosis, etc., so frequently observed after the ingestion of antipyrin and acetanilid.

Exalgine is eliminated by the urine, upon the quantity of which it exercises a marked effect, acting like the antipyretics of the same group, and diminishing the quantity of the secretion. In diabetes it also diminishes the quantity of sugar eliminated. Like all of the derivatives of the aromatic series, it is antiseptic and antithermic, as well as analgesic, and possesses the latter quality in a comparatively superlative degree, being more efficient, in doses less than half as great as antipyrin.

The following are the formulæ for its exhibition, as given by M. G. Bardet in *Les Nouveaux Remèdes:*

Antineuralgic Potion of Exalgine.

℞.—Exalgine	ʒj.
Kirschwasser	ʒx.
Simple syrup	ʒj.
Distilled water	q. s. ad ℥v.

Dissolve the exalgine in the Kirsch water, and add the syrup and water. The dose is from one to three tablespoonfuls in the course of the day.

℞.—Exalgine	ʒj.
Rum	ʒx.
Distilled water	q. s. ad ℥v.

Proceed as before. The dose is the same as above.—*Medical Record*, October 12, 1889.

Eseridine as a Laxative.

Eseridine in chemical composition closely approaches its congener eserine or physostigmine, into which it may be transformed under the influence of

heat and weak acids. According to the *Journal de Médecine de Paris*, July 14, 1889, in medicinal doses it produces marked diarrhœa, without any appreciable action on the nervous system. Its poisonous dose is six times larger than that of eserine, while it is claimed to act as a reliable laxative in therapeutic doses.—*Therapeutic Gazette*, October, 1889.

Creolin.

The composition of this mixture is uncertain, that is to say, the preparation made by one manufacturer is not the same as that produced by another, consequently the value of creolin as an antiseptic may vary within wide limits.

The chief constituents of the strongest make of creolin, Pearson's, are resin soap, creolin oil (hydrocarbons), pyridines, and phenols. Of these the phenols are the important antiseptic agents, and they consist for the most part of creosols.

Solutions of creolin were found to be much more active disinfectants than carbolic acid; it seems probable that phenols, indifferent aromatic hydrocarbons, and resin soap are the constituents which lend to creolin its antiseptic qualities; and further, the condition of a fine emulsion, in which creolin is used, probably contributes to its activity.—*Centralblatt für Gynäkologie*, September, 1889.

Carbolic Acid for Furuncles.

Staff-Surgeon Leu, of the German army, gives the following conclusions on the treatment of furuncles, in the *Deutsche militärärztliche Zeitschrift:*

Subcutaneous injection of dilute carbolic acid is a simple and effectual abortive treatment of furuncles. Incipient furuncles which have not yet suppurated are especially adapted to the treatment. A cure results in these cases without necrosis of the connective tissue; in the more advanced furuncles which have formed pus, or are even discharging it, no deforming cicatrization follows. The proper strength of the carbolic acid is three per cent. This mode of treatment is particularly valuable in the army, because it shortens the time on the sick-list (when it is necessary to put the man on at all), and he returns to duty with a better cicatrix, while many may be treated without going to the hospital. The simplicity of the apparatus required—a subcutaneous syringe and a small bottle of carbolic solution—makes it possible to carry out the treatment anywhere and at any time; for example, during manœuvres and on the march.—*Lancet*, August 17, 1889.

Antiseptic Action of Chloroform and other Vapors.

Dr. Segall has published in the *Münchener medicinische Wochenschrift*, an account of some observations in which he has been engaged, with the object of determining the amount of antiseptic action possessed by the vapor of chloroform, of formaldehyd, and of creolin. The method employed was to infect the jelly (previously liquefied) in a test tube with the particular microbe under inspection. After the infected jelly had been allowed to solidify, a small tube containing chloroform, creolin, or a ten per cent. solution of formaldehyd was suspended over it, so that the surface of the jelly should

be exposed to the action of the vapor given off, the mouth of the test-tube being closed with a well-fitting plug of cotton-wool. The greatest effect was produced by the vapor of chloroform, this being found to have a nearly equal effect on all the different bacteria experimented on, these including staphylococcus pyogenes aureus, bacillus prodigiosus, and the bacilli of pneumonia, of typhoid fever, of anthrax, of cholera, etc. The upper part of the jelly remained clear and free from microbes, while the deeper layers presented evidences of the existence of numbers of colonies. In the tubes containing formaldehyd, though only in a ten per cent. solution, there was also a great difference between the superficial and deep layers; while when creolin was employed this difference was much less marked, though the antiseptic action was greater than that of the fumes of carbolic acid, which have been shown to exert no preventive action on jelly cultures of the cholera microbe.—*Lancet*, September 28, 1889.

Lemon-juice in Nosebleed.

In a case of rebellious epistaxis, which had resisted various modes of treatment, including plugging of the anterior nares, Dr. Fauchon gave relief by the local application of lemon-juice. An injection of the juice was made by a glass syringe into the nostril from which the blood was escaping, with the result of immediately arresting the hemorrhage.—*Medical Record*, October 5, 1889.

A Simple Remedy for Hiccough.

After trying all the ordinary measures without avail, Dr. Loebl fell back upon a household remedy as a last resort, and ordered a teaspoonful of pulverized sugar wet with an equal volume of wine vinegar, to be taken at one dose. The hiccough stopped immediately and did not return for six hours, and then ceased after a second dose of the remedy.—*Medical Record*, Sept. 28, 1889.

Disinfectants for Intestinal Discharges.

Professor Uffelmann has carefully tested the disinfectants which are commonly recommended for the purpose of disinfecting fecal discharges as to their reliability to accomplish this object. His results vary to some extent from the generally accepted views on this subject, though he insists upon the importance of contact with the disinfectant for a considerable time. We can hardly hope to find even the strongest agent capable of exerting its preventive qualities within a few minutes.

Professor Uffelmann's observations are limited to intestinal excretions which are in a liquid state, and do not extend to the proper treatment of discharges which have a firm consistence. He considers sulphuric or hydrochloric acid diluted with an equal or with double the volume of water, the most active. Next come an acidified corrosive sublimate solution and also potash lye. Carbolic acid in five per cent. solution does not destroy all bacilli after an hour, but kills nearly all spores after twenty-four hours' contact. Caustic lime in the proportion of 1 to 100 is uncertain in its action; in the proportion of 2.5 to 100, after twenty-four hours, it is quite reliable as a disinfectant.

In order to disinfect watery discharges and those which have a thin consistence, they may be mixed with an equal volume of the diluted acid solution; if sulphuric acid is employed two hours' contact will suffice, with hydrochloric acid twelve hours.

If a five per cent. carbolic acid solution is used, it should be allowed to act for twenty-four hours.

A solution made up of

Corrosive sublimate	2 parts.
Hydrochloric acid	½ part.
Water	1000 parts.

may be used with an equal volume of feces and allowed to exert its action for at least half an hour—better for twenty-four hours; after a quarter of an hour even typhoid bacilli are not killed.

Caustic lime in the proportion of 2½ parts to 100 parts of feces will act as a germicide in twenty-four hours. Simply pouring hot water over the discharges is useless.—*Therapeutische Monatshefte*, September, 1889.

MEDICINE.

UNDER THE CHARGE OF

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THE TREATMENT OF TYPHOID FEVER WITH ENEMATA OF A SOLUTION OF TANNIC ACID.

BACKHAUS (*Deut. med. Wochenschr.*, 1889, No. 29, 583) compares our helplessness in the presence of certain internal diseases caused by microörganisms with our ability to master surgical affections by means of direct antiseptic treatment; the difference resting on the fact that the microbes in internal diseases are frequently situated where it is not feasible to use antisepsis. This difficulty does not apply in such full force to affections in which the intestine is the seat of entrance of the microbes into the system, and especially when the disinfection can be applied from the rectum. The author has been led by Cantani's sucesss with injections of a solution of tannic acid in cholera, to attempt the same method in typhoid fever; the indications being to limit the growth of the bacilli, and to render harmless the ptomaines produced by them. The method employed was the injection twice daily of a warmed solution containing at first 30 grains of the acid in two quarts of water, and later

150 grains in the same quantity of water. It is, of course, necessary that the solution penetrate as high as possible into the intestinal canal. To accomplish this the patient should preferably be placed on the back and the fluid injected slowly, with but slight pressure and with frequent interruptions. In this way reflex vomiting will be prevented.

The author reports a series of cases illustrative of the results which he has obtained in many other instances of typhoid fever treated after this method. He claims that the injections of tannic acid have no influence on the fever-curve—*i. e.*, the drug is not a specific in the disease, since it cannot affect the symptoms produced by the bacteria, or the chemical products caused by them after these have once been taken into the system. On the other hand, profuse diarrhœa is entirely checked or greatly limited by this treatment. He believes, too, that the dejections are at once rendered harmless, and the danger of infection to the attendants and patients in the same hospital ward is removed.

Is the Bacillus of Typhoid Fever Transmissible to the Fœtus?

Eberth (*Fortschr. d. Med.*, 1889, No. 5, 161) calls attention to the scantiness of reported investigations on the subject. He quotes the case reported by Reher as well as that published by Neuhauss, in both of which typhoid bacilli were said to be present in the fœtus; and refers, too, to the observation made by Chantemesse and Widal, who found the bacilli very abundant in the blood from the placenta. He claims, however, that the first two cases fail of the importance which would otherwise be due to them, because no description is given of the characteristics of the microörganisms found; while the third case is in fault, because no observations had been made upon the microbes present in a dead fœtus, and we could not tell but that in it there might occur bacilli resembling morphologically the typhoid bacilli. The confirmation of these cases was, therefore, earnestly to be desired, and this the author has been able to make. There came to his observation not long after its birth a dead fœtus of about five and a half to six month, still surrounded by the membranes. The mother had aborted while suffering from a typical attack of typhoid fever, and the fœtus had probably been dead ten days. Nothing abnormal could be found on dissection, but a careful bacteriological examination was made of the blood and of portions from the different organs of the body. The author describes the methods employed and the appearance of the cultures made; which revealed distinctly the presence of bacilli having all the characters of typhoid bacilli. To prove that these were not microbes accompanying decomposition, and merely resembling those pathognomonic of typhoid fever, he made and describes a series of studies on eight fœtuses, some of them fresh, others having already undergone some change. The results showed that even when the dead fœtus has been retained a long time in the uterus, microbes do not develop in it until late. Further, that in none of the eight cases were other than cocci and diplococci found.

The author considers it proven that typhoid bacilli do pass from the mother to the fœtus, though he does not know whether this is the rule or the exception. He is inclined to the view that it is only as a result of disturbance in the circulation in the placenta that this result becomes possible.

Tetany.

F. C. Shattuck (*Boston Med. and Surg. Journal*, 1889, cxxi. p. 231) exhibited at the Boston Society for Medical Improvement a case of tetany occurring in a girl of twenty-one years. Five years previously she had suffered from a very severe attack of diphtheria, followed by paralysis of the fauces and right leg. After recovery she began to experience occasional cramps, at first limited to the right hand and arm, and lasting only one or two minutes, but gradually spreading to the other limbs, lasting sometimes an hour, and becoming more frequent. It was easy to produce a spasm in either or both arms by pressure in the axillary or clavicular regions. Prompt relaxation was effected by the application of the constant current. The only disease with which the affection could in this case be confounded was hysteria, from which it could be distinguished by the intermittent and bilateral features and the total absence of other indications of this affection. In a case which the author saw some years ago, the possibility of tetanus had to be taken into consideration.

S. L. Abbot (*Ibid.*, p. 230) also reported a severe case of the disease, which yielded promptly to urethan. The disease had commenced without known cause six weeks before, and when first seen the patient was suffering from severe cramps, affecting all the flexors of the extremities, the abdominal muscles in part, the outer muscles of the thighs, and those about the shoulders. They increased in frequency, occurring on some days every half hour, and being easily excited by any muscular effort. There was some pain down the left leg, with tenderness near the sacro-iliac synchondrosis. General sensation was normal, and the special senses were unaffected. Ten grains of urethan were given every two hours during the day, the dose to be increased to fifteen grains at bedtime. A milk diet was also ordered. Within about twenty-four hours the spasms had ceased entirely.

The Treatment of Insomnia.

Jastrowitz (*Berl. klin. Wochenschr.*, 1889, No. 27, 624) considers insomnia, for the sake of convenience of study, as an essential disease, for whose treatment there is, therefore, an *indicatio morbi*, an *indicatio causalis*, and an *indicatio symptomatica*.

Under the first division he discusses briefly the nature of sleep, rejecting the dynamic theory that sleep is a passing into a condition of rest of those parts of the brain which preside over consciousness and voluntary procedures. The mechanical theory rests on the distribution of the blood throughout the body, and, as regards this, it seems likely that the old view, that during sleep there is an anæmia of the brain, is the correct one. The subject is, however, by no means clear, and it is not certainly known whether the sleep produces the cerebral anæmia or *vice versa*. The measures often directed to the production of sleep by diverting the blood to the periphery, such as warm baths, etc., sometimes are very useful, sometimes fail altogether. The chemical theory supposes an auto-intoxication by some hypnotic substance produced in the muscle as it grows tired. A similar substance, however, sodium lactate, when ingested does not produce sleep, though it is known that pro-

cedures which form lactic acid or its salts in the organism dispose to sleep also. Such are exercise in the open air or in institutes for the milk or whey treatment.

In considering the *indicatio causalis*, a distinction must be made between those causes which act directly on the brain, preventing sleep, and those acting indirectly. In the first class are diseases of the brain, as well as excessive mental work and excitement of the emotions. In focal cerebral lesions surgical interference is sometimes of value in curing the sleeplessness; in all others symptomatic treatment is also to be employed, since the removal of the cause, as in overwork of the brain, is not followed by relief of the insomnia. It is not so much the work itself, as its union with a certain amount of emotion, which produces insomnia. Even long-continued emotion, passive, as care, or active, as fear, revenge, etc., without excessive mental work may produce insomnia; and in the treatment of it it is necessary to remove the patient from his surroundings by travel, and to aid the cure by wine, bromide of potash, and paraldehyde. When insomnia is due to the combination of emotion with overwork, the treatment is far more difficult. These patients must for months or years be withheld from work, and, if possible, at first be confined to the house. The Weir-Mitchell cure, electricity, and, in many cases, phenacetin, are of value. So also is a cold-water cure in the mountains.

Among indirect cases of sleeplessness may be included conditions which produce somewhere in the body pain or disturbances of circulation, diseases of the blood, and the entrance into it of substances foreign to it. The *indicatio causalis* in these cases is to remove such causes as working late at night, the use of coffee, tea, tobacco, etc., and intoxication with arsenic, lead, and mercury. Indirect insomnia is often found in general diseases. Here the diminution of the bodily temperature is often of value, or, in diseases of the circulatory apparatus, the use of means which will regulate it. In the insomnia of chronic disease many causes operate. Thus, in diabetes, the hunger, thirst, and the desire to urinate, interfere with sleep. In diseases of the kidneys, insomnia is often the first indication of interstitial nephritis and of uræmia. But in all these chronic diseases the *indicatio causalis* often cannot be filled.

Symptomatic treatment must, indeed, be employed in all cases; and narcotics and sedatives have been principally used. In the choice of these, the drug, the disease, and the individual are to be considered, as well as whether the insomnia is acute or chronic. If acute, the remedy must be prompt and harmless; but if chronic, quickness of action is not so important. A harmless drug is one which is not dangerous in small doses, does not irritate the digestive tract, produce congestion of inner organs, or diminish the strength of the heart. In chronic insomnia its continued administration should not in any way injure the organism. It is, indeed, best to avoid narcotics as far as possible. Since the need of sleep varies greatly with different patients, and the hours in which sleep is the soundest and most beneficial are not alike throughout the night, it is evident that these and other circumstances must influence the choice of the remedy and the time of its administration. As sleep must be obtained in the most natural way possible, the belief must be aroused in the patient that he must go to sleep, the muscles must be relaxed by proper position, and the room should be darkened. A proper external

temperature is important, the best being 10° to 14° R. A local sensation of cold, as in the case of cold feet, is a great interference with sleep; though keeping the head cool is an advantage. The sense of hearing may often be made of value for producing sleep; a soft, monotonous sound being useful for this purpose. The action of hypnotism is not to be undervalued.

Among the drugs used for the treatment of insomnia, the first to be mentioned is alcohol in its different forms. In the severer varieties of chronic insomnia, and especially in those persons disposed to alcoholism, it is best to avoid it, but in the lighter forms it is often very useful. Opium and morphia are excellent hypnotics, and produce sleep most like the refreshing natural sleep. Caution must be exercised in conditions of congestion and in weakness of the heart. The formation of the opium-habit must also be guarded against. In children bromide of potash is to be preferred. Hydrate of chloral is the strongest hypnotic, but is dangerous in large doses. It is excellent in delirium tremens, status epilepticus, and in convulsive disorders. It is, however, to be avoided in heart disease, hysteria, cases in which there is difficulty in breathing, and in those persons in whom it produces no initial stage of excitement, and especially no alteration of the pupil. Paraldehyde in long-continued or large doses gives rise to a condition resembling that produced by alcohol. It is of value in hysteria, alcoholism, acute insomnia, the itching of jaundice, etc. As it is eliminated by and irritates the lungs, it is contraindicated in bronchial conditions. Its action is good in cardiac asthma; bad in emphysema and in arterio-sclerosis. It is not to be used in chronic insomnia and in conditions of extreme excitement, but is of value in insomnia from moral causes and in the restlessness of epileptics. Amylene hydrate disagrees with the stomachs of many patients and produces slight swelling of the hands and face. It is given in the insomnia of all diseases; also to allay cough. Sulphonal acts slowly, and is consequently not of service in acute disease and to allay pain; but of value in conditions with motor unrest. After prolonged use it produces dizziness and a sensation of ataxia.

In comparing the pure narcotic strength of these drugs they may be arranged in the following descending scale: Morphia, chloral, amylene hydrate, paraldehyde, sulphonal. If, however, they are arranged in the order of the proper hypnotic and uninjurious dose they stand: Chloral, sulphonal, amylene hydrate, paraldehyde, morphia.

A Distending Sound for the Treatment of Stenosis of the Œsophagus.

Senator (*Therap. Monatsh.*, 1889, No. 7) recommends a distensile sound for contractions of the œsophagus. It should be made of laminaria or tupelo, and should be only as long as the constricted portion of the canal. This apparatus should be made fast by a screw to a thin soft sound, and a silk thread can be fastened to its upper end, and allowed to hang out of the mouth after the introduction of the sound. The great advantage of this apparatus is, that a sound may be introduced of a calibre sufficient to allow it to pass easily, safely, and comfortably, and that dilatation only slowly takes place after the desired spot is reached. The instrument should be withdrawn after, at most, a half hour, or difficulties may arise through irritation of the œsophageal walls.

The writer has only tried this method on cases of carcinomatous stricture, but found that by it he was able to make swallowing easier than by the use of the olive-tipped and other bougies generally employed.

Pneumothorax Consecutive to Idiopathic Emphysema.

E. S. Reynolds (*Manchester Med. Chronicle*, October, 1889) details the case of a man who had suffered repeatedly from attacks of bronchitis occurring in winter-time. The last attack had lasted about five months, when the patient was suddenly seized with a severe pain in the left side, made worse by breathing, and accompanied by urgent dyspnœa and collapse.

When admitted to the hospital he was suffering from great difficulty in respiration, subnormal temperature, marked cyanosis of the whole body, and considerable œdema of the hands and feet. The cardiac dulness was absent to the left of the sternum, and somewhat increased to the right of it. There was constant cough, with abundant muco-purulent expectoration. The chest was typically barrel-shaped, with the lower ribs much expanded. The respiratory movements were much greater on the right side of the chest, and this side was two inches less in circumference than the left. The left hypochondrium was distinctly more prominent than the right. Percussion over the left side was hyper-resonant and tympanitic; there was a slight movable area of dulness; vocal fremitus was very feeble; the breath sounds were very faint, and not amphoric; there was no bell-sound. The diagnosis was made of chronic bronchitis, emphysema with dilated heart, and pneumothorax with a small amount of pleuritic effusion on the left side.

The autopsy confirmed the diagnosis. The lung was very emphysematous, but no opening was found from it into the pleural cavity, though this was not thoroughly tested.

The author calls attention to the rarity of pneumothorax consecutive to emphysema, Saussier having reported only 5 in the 131 cases of pneumothorax which he analyzed. He believes, too, that this case controverts the statement of Fernet, *i. e.*, that the pressure of the air in pneumothorax can never be greater than that of the atmosphere, nor distend the side to a greater degree than would happen in forced inspiration, nor displace the organs in the mediastinum. He thinks this is obviously an error, since, in the case which he reports, the diaphragm was markedly depressed on the affected side, the mediastinal organs were pushed to the opposite side, and, finally, when an incision was made through the chest-wall, the air was distinctly blown out of the opening.

Movable Heart.

Alois Pick (*Wien. klin. Wochenschrift*, 1889, No. 40), after a review of this subject and a report of certain cases, draws the following conclusions:

1. Slight movability of the heart is of common occurrence, while great movability of the organ is comparatively rare.

2. The abnormally movable heart is found in strong and healthy individuals, and is then probably a congenital anomaly. It is also found in combination with heart disease, as well as in disease of other organs, without

there being any discoverable genetic relation between these pathological processes and the abnormal mobility.

3. The condition of abnormal movability can be brought about by emaciation, whether this be due to disease or to treatment for obesity.

4. The diagnosis can be made with certainty on account of the shifting position of the apex beat and of the area of cardiac percussion dulness, seen as a result of change in the position of the patient.

5. Regarding the subjective symptoms of abnormal mobility of the heart, sometimes there are absolutely none, but in the large majority of cases there are occasional palpitation, a sense of weakness and vertigo on running or violent exercise, and an inability to lie on the left—or more rarely the right—side, owing to the sense of oppression produced thereby.

On the Function of the Stomach in Diseases of the Heart.

E. Huefler (*Münch. med. Wochenschrift*, 1889, xxxvi., No. 33, 561) says that of the various affections in which the stomach is secondarily disordered, tuberculosis is the only one in which sufficiently careful and extended investigations have been carried on. These studies, made by different observers, show that the disturbances of function in this affection vary considerably; depending on the stage of the disease, and other conditions. In general, there is a chronic gastritis of varying intensity, which one writer (Immermann) claims is purely accidental, and has nothing to do with the principal disease.

A second group of disorders, in which Ewald says there is a chronic catarrh, is that of the diseases of the heart. As it is such a common occurrence for patients with cardiac affections to complain chiefly, or even exclusively, of gastric symptoms, the author has endeavored, in a series of cases, to examine the actual condition of the gastric function, as far as the state of the patients permitted. With this end in view, he administered the meal proposed by Leube, usually at about 9 o'clock, and on an empty stomach. The meal consisted of 8 ounces of roasted and chopped beef, 1 ounce of bread, and not more than 1 glass of water. In two hours the effort was made to press out some of the contents of the stomach through the sound, and without the addition of water. This was always successful. The remainder was left to undergo digestion, and a sample of it was removed after this had been going on six hours; the stomach being after this entirely washed out. Where the condition of the patient permitted it, these examinations were frequently repeated. In other cases only the two examinations were made in all, and sometimes these conducted on different days.

The material which had been removed was filtered and its reaction tested with litmus paper. The presence of hydrochloric acid was then tested with phloroglucin-vanillin; and that of lactic acid by Uffelmann's test. It was not found necessary to determine the degree of acidity.

Methyl-violet was also employed in the examination for hydrochloric acid, but the author considers it by no means so reliable as Günzburg's reagent. Where the quantity of the gastric juice obtained permitted it, the digestive strength was tested in a warming-oven at 98.6° F.; and sometimes the examination for syntonin and propeptone was carried out.

The author gives the details of the individual cases—10 in all—and remarks on the fact that, except in one instance, free hydrochloric acid was never found in the gastric contents in heart disease. In this case, there was free acid present after six hours; at a time when hydrochloric acid should have disappeared from the normal stomach. The case was, therefore, one of hyperacidity, which the alkalinizing action of the heart disease had not been able to neutralize. The author believes that, as a result of passive congestion in the circulation in the stomach, either there is an effusion of alkaline serum, mixing with the acid, or else the simple retardation of the blood current is answerable for the diminution of hydrochloric acid. The disturbance of the secretion is evidently very easily effected, since the majority of the patients examined had no subjective symptoms of gastric disorder. Mild cases of heart disease do not necessarily produce a gastric catarrh, but simply a diminished secretion; and the lack of fine division of the food, which is the result of this, is overcome by the powerful muscular action of the stomach. It is advisable, therefore, to administer hydrochloric acid to patients with heart disease in order to favor this minute division of the food, and to relieve the gastric muscles of the necessity of pressing large portions through the pylorus. In this way, the development of an actual catarrh may, perhaps, be prevented.

The Influence of Drugs on Putrefactive Processes in the Intestine.

R. Stieff (*Zeitschr. f. klin. Med.*, xvi. 311, 1889) reviews the experiments and writings of those who have shown that such substances as phenol, indol, skatol, and kreosol, found in the urine, are really products, in the healthy individual, of decomposition going on in the intestine under the action of the microörganisms of putrefaction. In individuals in whom there is some putrefactive process taking place elsewhere in the body, owing to some pathological condition, these substances will appear in the urine in excess. There will also be a similar increase when the absorption from the intestine of the normal products of digestion is insufficient or interrupted.

He next discusses the experiments which have been made to determine whether the introduction of antiseptic materials into the intestine would not interfere with the decomposition of albuminous bodies there. As he does not regard the results of these experiments as conclusive, and as it is important to possess some substance which has this power of checking putrefaction in the bowel, he himself undertook some investigations on the subject, performed on a series of patients in Gerhardt's clinic. The drugs employed were calomel and camphor, and careful analyses were made of the urine while they were being given. The experiments he details fully, and sums up the results in the following conclusions:

1. Calomel, given in doses of 5 grains three times a day, exhibited no disinfecting power in conditions of increased decomposition in the intestine.

2. Consequently it can scarcely be recommended for the purpose of checking putrefaction in the intestine, on account of the large dose which would need to be employed.

3. Camphor appears to possess a slight restraining power on putrefaction,

since, in two cases, doses of 5 grains three times a day produced a diminution of the intestinal decomposition.

4. This action of camphor does not appear at once, and is only distinct after two to three days.

A Case of Perforation of a Perityphlitic Abscess into the Pleural Cavity; with Purulent, Feculent Pleural Exudate.

E. Grawitz (*Berl. klin. Wochenschr.*, August 12, 1889) reports an interesting case of a woman who, for fourteen days before coming under observation, had suffered from vomiting, fever, and pain in the right side. She had at first taken purgative pills for constipation, and later medicine to check the diarrhœa produced by them. When first seen she was in a stupid condition, and made no complaints. The pulse was rapid and small; the respiration accelerated and superficial, and accompanied by slight cough. The tongue was dry and brown, and there were vomiting and diarrhœa. In the course of the disease dulness developed over the posterior part of the right lung, and aspiration revealed a bloody serous effusion. No aspirations were made in the latter part of the patient's life. The abdomen was distended, but not tender on pressure; and in the right ileocæcal region there were an indistinct dulness and a moderate amount of gurgling. Enlargement of the spleen could not be detected. The fever continued very irregular, and the symptoms showed little alteration for nearly three weeks, when death occurred. At first it seemed as if the disease could be typhoid fever, but the clinical diagnosis was finally made of some septic process going on in the abdominal cavity.

The autopsy showed a purulent perityphlitis perforating into the retroperitoneum, cæcum, duodenum, and through the diaphragm into the right pleural cavity. The vermiform appendix was gangrenous, and contained a fecal concretion which was evidently the starting-point of the abdominal inflammation. The appendix contained also a small perforation into the peritoneal cavity, which had certainly occurred only during the last days of the patient's life, and had produced a recent, circumscribed, purulent peritonitis. The peculiarity of the case lay, of course, in the fact that the pus had perforated into the pleural cavity. The contents of the pleura were purulent, of rather thick consistence, yellow in color, and of very marked fecal odor. It is evident that there must have existed a pleurisy at the time the aspirations were made; but at just what time the pus penetrated the diaphragm cannot be determined.

Cystinuria.

Leo (abstracted in *Medical Chronicle*, October, 1889, from *Zeitschr. für klin. Med.*, B. xvi., H. 3 and 4) reports a case of a woman who at the age of nineteen was attacked by violent spasmodic pain in the region of the left kidney. The attacks of colic recurred afterward at intervals of three to six months. The last, especially long and severe, occurred in 1881, and ceased as a stone almost the size of a bean was passed in the urine. For one and a half years she was free from pain, and then began to suffer from periodic seizures of slight, dull pain. Five years ago pain recurred in the region of the right kidney, coming on after violent exertion, and probably due to floating kidney.

While under observation she complained of dizziness, headache, occasional oppression, disordered bowels, and at times slight pain in the region of the left kidney; but the chief causes of complaint were weakness, loss of appetite, and the pain in the right renal region. Examination showed that the right kidney formed a movable tumor in the right hypochondriac region. The sediment from the urine always contained a great number of six-cornered crystals of cystin, mixed with epithelium and lymph-cells. Many times small calculi the size of a pin's head were found in the deposit. The stone passed in 1881 weighed nine grains, and was of a yellowish color and of waxy appearance. It was soluble in ammonia and hydrochloric acid. Fine crystals were obtained by neutralizing the hydrochloric acid solution with ammonium carbonate.

Hitherto sixty-three cases of cystinuria have been described. Probably the affection is more frequent, but only gives rise to symptoms when calculi are formed. This is the reason why most cases described have been in the male sex, as the spontaneous passage of stones takes place less frequently in the male than in the female.

Baumann found in a case of cystinuria with catarrh of the bladder tetra- and penta-methylendiamine in both urine and feces. As these substances are not found in healthy urine, some relation is supposed to exist between them and the occurrence of cystin in the urine. According to Brieger, they are the products of bacteria.

The author then describes Loebisch's method for the quantitative estimation of cystin. Then he details three series of observations which he made on the present case with regard to the amount of cystin, uric acid, nitrogen, etc., in the urine. In the first series the patient followed her ordinary mode of life, and took an ordinary but accurately measured diet. In the second series the influence of hard, muscular exercise was studied. In the third series 6½ ounces of meat peptone were added to the diet. The results were negative, the amount of cystin remaining practically unchanged. Many earlier authorities found a diminution of uric acid, but in the present case, as in many more recent cases, the amount of uric acid in the urine was not lessened.

Antipyrin in Diabetes Insipidus.

Opitz (*Deut. med. Wochenschr.*, No. 32, 1889, quoted in *Centralblatt für die gesammte Therapie*, Oct. 1889) administered antipyrin to three cases of diabetes insipidus in which long-continued treatment of other kinds had been valueless. The results were immediate, and all the symptoms at once disappeared. In one case the cure was permanent and in another very lasting after the withdrawal of the medicine. In the third case the amount of urine reached again its former figure, to diminish again when the administration of antipyrin was recommenced. Two of the cases were very severe, one of them having lasted twenty years, and the other excreting sixteen quarts daily. The initial dose of the drug should be 30 grains daily, and this should be increased 15 grains each day until 90 grains are being given, or the diminution of the secretion of urine appears. After about eight days the medicine should be omitted, in order to observe whether the good effects remain.

The author believes that even should further trial of antipyrin show that

it does not always succeed in diabetes insipidus, yet for many cases the prognosis will be certainly made better by the use of the drug.

Primary Malignant Disease of the Duodenum.

E. N. Whittier (*Boston Med. and Surgical Journal*, 1889, cxxi. 377) refers to the unsatisfactory condition of the few published statistics regarding the relative frequency of different forms of intestinal cancer, and concludes that computation from all sources would give about one per cent. of intestinal cancer primary in the duodenum. It is generally conceded that the most prominent factor associated with morbid growths of the bowel is diminution of the lumen of the tube, whatever the nature of the growth may be. A certain class of intestinal neoplasms arise as disks, fungoid growths, or villous prolongations; and many other forms at some time assume this type of development; and all such project into and obstruct the canal. Another class of growths implicate the circumference of the intestine and produce annular constrictions. Whichever of these two methods operates, the tendency is the same—toward a complete closure of the canal. The fact that the contents of the stomach leave it in a liquid state, renders it possible for a passage to be effected through a very small opening. Hence the extremely negative symptom of latency stands high among the rational signs of cancer of the duodenum. There is no factor in this locality to produce compensatory hypertrophy of the muscular coat of the bowel as in lower parts of the intestine. Consequently the symptoms of lessened calibre, long latent, suddenly declare themselves with great force, and with all the evidences of an acute and complete stenosis.

In cancer of the duodenum the symptoms worthy of the greatest confidence are those arising from occlusion of the common duct, with or without evidence of obturation of the intestine, and the resulting dilatation of the stomach and first portion of the duodenum; for it is at this point that the greatest number of duodenal cancers occur. When the disease affects the upper third, intestinal digestion is less disturbed, because the passage of the bile and pancreatic secretion is not interfered with. In this locality, however, the growth can only with the greatest difficulty be differentiated from pyloric cancer. When the cancer is in the lower third of the duodenum, bile is frequently present in the vomited matter. Blood may appear either in the dejecta or vomited matter, according as the gut is pervious or the ulcerative process is at the lower or upper portion of the obturating mass.

The appearance of the abdomen in duodenal cancer is determined, in large measure, by the quantity and quality of the food descending into the intestine. As a rule, it is "boat-shaped;" and this, together with gastrectasis, serves to indicate the degree of obstruction. Pain is a very uncertain symptom, and its aid to diagnosis is small. The question of tumor is particularly unsatisfactory; for though a tumor can usually be detected in other forms of intestinal cancer, this is not the case when the growth is in the duodenum. In this locality a tumor cannot be discovered in any considerable percentage of the cases.

The author appends a synopsis of thirteen cases of duodenal cancer not pre-

viously presented in connection with a paper on this topic. In the majority of these there is no record of the presence of any tumor.

On Peculiar Parasitic Organisms in the Epithelial Cells of Carcinoma.

Thoma (*Fortschr. d. Med.*, June, 1889) says that for some time he has been studying peculiar, small, cell-like structures, which occur very frequently in the epithelial nuclei of carcinoma. They exhibit such a contrast in form, size, and arrangement to the cell-forms usually found in man, that they must be considered to be of a parasitic nature. These parasites appear as single bodies of from 4 to 15 μ in diameter, becoming more apparent when stained by various dyes, as safranin, alum carmine, hæmatoxylin, and eosin. They consist of protoplasm and nucleus, and sometimes of a nucleolus as well. Their form is irregularly round, or oftener oval; or sometimes whetstone-shaped, or of the form of a ship (resembling navicella). They are quite strongly refractive. It is a remarkable fact that these bodies lie singly or in groups of five or six in the epithelial nuclei. These latter then lose their ability to take the stain, and become hollow, bladder-shaped bodies, containing only the parasites and here and there a little granular matter. In other cases, however, a cavity forms close to the cell-nucleus, and in this the unit cellular bodies are situated.

In the hollows in the cell-nucleus are also found spheres of chromatin, and sometimes granular or homogeneous, highly refractive, spherical bodies, unstained by nuclear dyes.

The author intends in the future to give a more extended description of these peculiar forms, which he has found in carcinoma of the rectum, stomach, and breast. He would, in concluding, only call attention to the fact that similar parasites have appeared to produce epithelial growths in birds, and that in the intestinal epithelium of the salamander have been discovered parasites likewise allied to the coccidia.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF PENNSYLVANIA; SURGEON TO THE UNIVERSITY, PHILADELPHIA, AND GERMAN HOSPITALS.

Dry Operations.

Dr. Landerer (*Archiv für klinische Chirurgie*, vol. xxxix., 1889) says that now that the great problems of antisepsis have been solved, it remains chiefly to improve in smaller matters our treatment of wounds, and to endeavor not only to cure all patients, but to do so *tuto, cito et jucunde*. Influenced by the

fear of carbolic, iodoform, and sublimate poisoning in antisepsis, and by the difficulties of procuring sterilized fluids, etc., in asepsis, he has for a long time operated without bringing a drop of fluid of any kind in contact with the wound. The instruments are boiled and kept in a weak carbolic solution. The hands and the field of operation are disinfected by a modification of Fürbringer's method. As the wound is made it is dried with pieces of sublimate gauze and filled with wads of the same material. The larger vessels are tied. Angles and pockets of the wound are united by buried stitches. The wound is entirely closed, no provision for drainage and no opening for that purpose being left. The dressings are applied with moderate pressure. The results of the method, according to his experience in ninety major operations of all sorts, are:

1. All wetting and cooling of the patient are avoided.
2. The loss of blood is reduced to the minimum.
3. There is little or no danger of intoxication from absorption of the antiseptics.
4. The operation is shortened, as there is so much less time spent in arresting hemorrhage.
5. Healing is quicker and safer.
6. The antiseptic details are easier and more manageable.
7. The hands of the operator are not affected by contact with powerful antiseptics.

Subcutaneous Mercurial Injections in Syphilis.

Professor Leloir and M. A. Tavernier record (*Journal des Maladies Cutanées et Syphilitiques*, August and September, 1889) the results of their experience with hypodermatic injection of, *a*, calomel and oil of vaseline, 1 to 12 (875 injections); *b*, yellow oxide and oil of vaseline, 1 to 12 (642 injections), and "gray oil," purified mercury, 4 parts, ethereal tincture of benzoin, 1 part, oil of vaseline, 8 parts (56 injections). The retro-trochanteric region was used; one-half of a syringeful (Pravaz) was used for the first two, one-third for the last formula. The intervals were eight or nine days. They note the following complications observed in the series of 1573 injections: *a*, local pains, sometimes radiating, preventing movement, lasting from one to nine days; *b*, paresis of the lower limbs; *c*, vertigo, headache; *d*, occurrence of buccal mucous patches four or five days after the injection; *e*, local mercurial irritation around the point of injection; *f*, mercurial stomatitis; *g*, diarrhœa, simple or bloody; *h*, cutaneous swellings, hard, or sometimes vesicular, not going on to suppuration.

As to the value of these injections they come to these conclusions: 1. The treatment of syphilis by subcutaneous injections should be reserved for the erythematous eruptions and consecutive syphilides of the tegumentary surface. 2. The method should be employed when it is desired to make these eruptions disappear with extreme rapidity. 3. It is especially applicable to hospital patients—*i. e.*, to those who can be kept in bed. 4. It has but a slight action on the syphilides of mucous surfaces. 5. It has no influence in preventing early relapses. 6. In many cases it fails when inunctions suc-

ceed. 7. It should not be employed in cerebral, spinal, or visceral syphilis, nor in the syphilis of pregnant women, nor in infantile syphilis.

Its only advantage appears to be its rapidity of action.

Should Syphilitic Physicians Continue their Professional Work?

Professor A. Neisser, of Breslau, discusses (*Centralblatt für Chirurgie*, September 28, 1889) the above subject at some length, especially in reference to surgeons and obstetricians. He believes that the answer depends upon a number of factors:

1. The age or stage of the syphilis. The younger the disease, the greater the power of transmission. There is no proof of the existence of any infective quality during the late or tertiary stage.

2. Upon the character of the treatment, which, if careful and continuous, reduces both the chances of infection during the early period, and at the same time shortens that period materially.

3. As to details, the existence of a syphilide on the hand is an imperative contra-indication to professional activity, unless it is possible, in some safe mechanical way, absolutely to isolate the diseased region.

4. Infection by blood through accidental wounds or abrasion of the fingers of the operator is, of course, possible, but it is highly improbable that this will occur through microscopic cracks or solutions of continuity, and it is very unlikely to happen after the first year of the disease.

5. Infection through non-specific skin troubles in the hands of the syphilitic may occur, as from pustules, eczema, fissures, etc.

6. As to all these matters Professor Neisser draws a sharp line between possibility and probability, and is strongly inclined to think that with care as to the fingers, the use of protectives and of disinfectants, etc., the medical man who has been so unfortunate as to contract syphilis may continue to practise his profession with safety to his patients. This conclusion applies with more force to the surgeon than to the obstetrician, whose patients are in greater danger.

A Case of Loreta's Operation.

Dr. T. W. Huntington (*The Occidental Medical Times*, September, 1889) reports the case of a man, æt. twenty-three, who, after a long-continued history of gastric ulcer, developed the symptoms of pyloric stenosis. The stomach was opened, the pylorus found and dilated, first with a small uterine dilator, then with a Bigelow's sinus dilator, and finally with the fingers. He recovered uninterruptedly, and two months later was eating solid food without vomiting or distress.

As to the indications for operation in this class of cases, it would seem that positiveness in the diagnosis of cicatricial or non-malignant stenosis of the pylorus is far from easy of attainment. There are, however, three factors, which, if present simultaneously, point strongly to the existence of this condition: First, a well-authenticated history of chronic gastric or duodenal ulcer; second, persistent vomiting of partly digested food, or of biliary fluid; third, marked dilatation of the stomach. Epigastric pain, disgust for food of

any sort, and chronic constipation, together with various phenomena depending upon functional derangement, are of value only as confirmatory symptoms.

According to Treves, of London, this operation has been done frequently on the continent of Europe, Loreta being the most prominent operator. Up to May, 1889, this method had been resorted to but once in England, and that case was treated by Treves himself. Drs. Kinnicut and Bull, of New York, have recently published a table of twenty cases by various operators. To this table are added Treves's case and this of Dr. Huntington, making twenty-two in all. Of these, fourteen are reported cured, one improved, and seven dead. The causes of death in the fatal cases were as follows: Cancer of the stomach, hemorrhage into the stomach after operation, renal disease, exhaustion (on the eighteenth day), tetanus, and collapse. In one case the cause of death is not given.

Laparotomy in Chronic Peritonitis.

L. Prochownick (*Deutsche medizinische Wochenschrift*, No. 24, 1889) is of the opinion that much of the success claimed for operative interference in tubercular peritonitis is attributable to errors of diagnosis, and that the same also applies to other peritoneal inflammations. Four cases out of nine upon which he has recently operated were examples of chronic peritonitis, and had their origin in the pelvic tissues. No signs of uterine, tubal, or ovarian disease were present, and gonorrhœal infection could be excluded. The cases were all characterized by adhesions of the omentum to the pelvic organs. These omental adhesions occur in many cases of acute pelvic peritonitis, and gave rise to intestinal and gastric symptoms by interfering with the free movements of the omentum.

These symptoms consist of nausea, vomiting, gastralgia, flatulence, abdominal distention, and, if the omentum is adherent to the pelvic viscera, rectal and vesical tenesmus, constipation alternating with diarrhœa. Adhesion of the omentum to the generative organs gives only few symptoms, nausea and pain in the stomach after exertion, menstruation attended with cardialgia, pains radiating from the umbilicus to the labia.

If this symptomatology be well studied, the diagnosis of omental adhesion is as readily made as that of tubal or ovarian trouble.

Adhesion of the omentum to the parietal peritoneum is usually present, but gives no symptoms unless there be a complicating hernia.

The writer concludes that in chronic peritonitis, especially where extensive omental adhesions exist, and other measures have proved unavoidable, laparotomy is indicated. But the operator should be content with removing the peritoneal lesions, and leave the uterus and its appendages, unless they be markedly diseased.

The importance of chronic peritonitis in producing many of the symptoms in cases subjected to castration, has not been as yet recognized. Schroeder and Martin have successfully employed conservative treatment, and the latter regards the accompanying chronic peritonitis as the causative factor in the majority of cases of chronic oöphoritis and disease of the tubes. Other observers have also called attention to the frequency with which chronic peritoneal and omental adhesions are found in secondary laparotomies, and to their importance in the symptomatology of the case.

This shows that we should distinguish the symptoms attributable to chronic peritonitis from those due to disease of the other organs, and try to prevent at the first operation the development of subsequent peritoneal trouble (adhesions). This can be accomplished by loosening adhesions, avoiding strong antiseptic and astringent fluids in the abdominal cavity, removal of the contused omentum, strict toilet of the peritoneum, and the avoidance of opiates before and after the operation.—*The Annals of Surgery*, October, 1889.

The Use of Injections in Intussusception.

Dr. W. E. Forest calls attention (*Medical Record*, October 5, 1889) to the necessity, in using injections of either gas or liquid in cases of intestinal obstruction, of knowing, first, how much force the intestine will stand without danger of rupture; second, how much force one is using at any given moment. His experiments seem to show that the limit of safety in adults is fifteen pounds to the square inch; in children, six to eight pounds to the square inch. With the Bergeon apparatus, the pressure cannot be measured and regulated accurately. With the Davidson syringe, the exact pressure is equally indeterminate, while it is possible to produce a pressure of thirty to seventy pounds to the square inch. Dr. Forest continues as follows:

"In order to measure the pressure used in an injection, it is only necessary to remember that one atmosphere, or fifteen pounds to the square inch, supports a column of water thirty-three feet high; hence a column of water thirty-three feet high must make a pressure of fifteen pounds upon every square inch of surface at the base of the column. Now, if this column of water be held in a rubber tube of ordinary size, after allowing for friction of the water in the tube, it will be accurate enough to say that every two feet of the column represents a pressure of one pound to the square inch; hence a rubber tube six feet long, filled with water, and held vertical, will cause a pressure of three pounds to the square inch at its base; and a tube twelve feet long will exert a pressure of six pounds to the square inch at the base, and so on.

"Now, apply this principle to a case of intussusception in a child, for instance. The surgeon, instead of sending to the nearest city for a consultant and a Bergeon apparatus, goes to the drug store or hardware store and gets a rubber tube twelve to twenty feet in length. Into one end is inserted a funnel; into the other a nozzle of a Davison syringe. In order that the injected fluid may be retained, a shoulder may be made on the nozzle about one inch from the end, by winding a roller-bandage around. This shoulder will retain every drop of the injection when pressed against the sphincter. Now a pitcher of warm salt water completes the apparatus, and the father of the child is the assistant surgeon.

"The patient is taken into the hall-way of the house, so that the requisite elevation may be gained, the child is etherized, the surgeon inserts the nozzle of the syringe, and holds it in the rectum with one hand, while with the other he manipulates the walls of the child's abdomen. The assistant pours the water into the funnel and slowly raises it, mounting the stairs at the time if necessary. When the funnel has been raised twelve feet above the level of the child's body, great care should be exercised, as the pressure is now about

six pounds on every square inch of colon below the obstruction. It is seldom that a greater pressure than this will be needed to reduce a recent invagination. The pressure should be increased very slowly, as time is an important element in reducing an invagination. If in any case the pressure mentioned above does not bring about the end aimed at, the pressure may be increased up to ten pounds to the square inch."

The Radical Cure of Hernia.

Dr. George R. Fowler considers at some length (*Brooklyn Medical Journal*, November, 1889) the question of the present aspect of the radical cure of hernia, and comes to the following conclusions:

1. As to the selection of cases in which the radical cure is to be recommended, it may be said that the operation becomes one of necessity in all young persons with hernia, in the lower walks of life where existence depends upon some form of manual labor. Among these there always exists a demand for a snug or tightly fitting retentive apparatus; this alone will in the course of time so alter the anatomical conditions as to render it next to impossible to retain the hernia in position as well as increase the difficulties of a radical cure. Again, the expense and want of time to devote to personal needs prohibit most of this class from keeping themselves supplied with the most approved form of truss, and likewise from keeping the same in repair. Hence, there is always a temptation either to do without entirely, in ignorance of the dangers of such a course, or to place reliance upon an instrument which may be either inefficient or inapplicable for other reasons. On the other hand, among the better class, where ample means exist, and probably always will, to provide the best possible appliances and keep the same in an efficient condition; where the mental calibre of the patient is such as to grasp the situation and appreciate the dangers attending a careless disregard of instructions regarding the use of the truss, the operation may be regarded as one of convenience, and operative measures are to be instituted exactly as in the condition, analogous in this respect, of clubfoot.

If, in either of these classes, at any time it should transpire that the hernia cannot be retained without undue distress, or with ease and certainty, the radical cure, in view of the exceedingly favorable results obtained, is called for.

2. In all cases of strangulated hernia the operator owes it to himself, as well as to the patient, not to allow the latter to leave the operating table until the operation for radical cure has supplemented the necessary herniotomy.

3. The age of the patient need not be taken into account, providing the operative procedure selected be of a character suited to the requirements of the case.

4. With regard to the after-treatment, not less than six weeks in the recumbent position is to be considered essential, and no truss should be worn after the operation.

5. With these requisite conditions fulfilled it is fair to state to the patient, if he be a young person (under twenty-five years), that a cure may be assured; if he be an older person, still the chances are largely in his favor, and including the worst cases the proportion of cures averages at least fifty per cent.

The mortality, if individuals with chronic organic diseases or well-marked cachexia be eliminated, may be said to be next to nothing in proper hands.

An Unfortunate Result of Whitehead's Operation for Hemorrhoids.

Dr. Charles B. Kelsey, under the above heading, reports (*N. Y. Medical Journal*, October 5, 1889) the following case:

A woman, aged thirty-five, was operated upon eight months since in one of our city hospitals for hemorrhoids, by Whitehead's method. On examination, the anus presents a circle of excoriated mucous membrane, ending suddenly in healthy skin. The mucous membrane, which has been drawn outside of the rectum and united to healthy skin, is an inch broad for one-half the circumference of the anus and half an inch broad for the remainder. In other words, the circular incision in the operation was entirely outside of the margin of the anus, and the mucous membrane has been drawn down to it, changing a muco-cutaneous opening into one covered by mucous membrane. The patient's condition is a miserable one.

The plan of treatment advised was to dissect this mucous membrane loose, cut it off, bring the skin up as near the verge of the anus as possible, and allow the wound to heal by granulation. A stricture of the anus would, of course, be the natural consequence, but one which Dr. Kelsey thinks could be managed and would be better than the extensive ulceration which is sure to follow the excoriation now begun.

[In "Whitehead's operation," properly so called, the circular incision should be made at Hilton's "white line"—*i. e.*, at the line of junction of skin and mucous membrane. It does not seem clear that, in this case, the operator followed this direction, which is explicitly given by Mr. Whitehead. If he did not, it is unjust to saddle the method, now on trial before the profession, with a failure not properly belonging to it.—Ed.]

Litholapaxy in Children.

Dr. Dudley P. Allen (*Journal of the American Medical Association*, Oct. 5, 1889) carefully considers the arguments for and against the crushing operation in children, and comes to the following conclusions: Beyond question, the operation of litholapaxy in children is one which must be recognized. It is particularly suited to medium and small-sized stones, and though median and lateral lithotomy are very successful in such cases, we believe litholapaxy will be equally so in skilled hands, and that, beside safety, it has the great advantage of absence of cutting, and of the filthy condition of the patient. Suffering is commonly very slight, and is confined to a few days, and it is not infrequent for patients to be up and around on the third or fourth day. Patients will not hesitate so long before the crushing as the cutting operation, and should the return of the stone be more frequent after crushing than after cutting—as is shown to be the case—a second operation will be more easily performed than the first, on account of the size of the urethra increasing with the age of the patient. The condition of the boy's bladder is certainly more likely to be favorable to litholapaxy than that of an adult. Our idea would

be that large and hard stones should be removed by the suprapubic operation, especially if for any reason it is desirable to see the interior of the bladder. Medium and small stones are favorable for removal by litholapaxy, unless for some reason the urethra be smaller than normal. The operation of median lithotomy is a favorable one in cases with small stones, but an operator skilled in litholapaxy would do well to choose the latter. In cases of medium-sized stone, with an urethra not sufficiently large for the introduction of proper instruments for crushing, lateral lithotomy is indicated.

The Treatment of Retention of Urine from Prostatic Enlargement.

Mr. A. F. McGill, of Leeds, in opening the discussion of the above subject at the last meeting of the British Medical Association (*British Medical Journal*, October 19, 1889), advanced the following propositions, supporting them by the histories of twenty-four cases occurring in his own practice and that of others. His remarks apply to the chronic, and not to the acute, form of retention. He asserts:

1. That prostatic enlargements which give rise to urinary symptoms are intravesical, and not rectal. . . . It has been long recognized that the severity of the symptoms in a case of hypertrophy of the prostate bears little or no relation to its apparent size as felt through the rectum, and it is also well known that a considerable number of men, aged fifty-five and upward, have prostates of an abnormally large size, though of these only a certain proportion—say fifty per cent.—suffer from urinary symptoms. This strange difference depends on the position at which the organ is enlarged.

Prostates of immense size, which project toward the rectum and perineum, cause no urinary trouble, while severe symptoms may supervene when the prostate on rectal examination is apparently of normal dimensions.

In the twenty-four tabulated cases there was one characteristic common to all—the enlarged prostate projected into the bladder. There are many varieties of the intra-vesical growth.

We find (*a*) a projecting middle lobe—pedunculated or sessile; (*b*) a middle lobe with lateral lobes, forming three distinct projections; (*c*) the lateral lobes alone; (*d*) a pedunculated growth springing from a lateral lobe; and (*e*) "a uniform circular projection surrounding the internal orifice of the urethra." This last variety, described by Brodie, has in recent years escaped notice; it is better seen *in situ* than in museum specimens, and is not of infrequent occurrence. It surrounds the urethra like a collar, and projects for a variable distance into the bladder.

2. That retention is caused by a valve-like action of the intra-vesical prostate, the urethral orifice being closed more or less completely by the contraction of the bladder on its contents. . . . When the bladder contracts on its contents, the contained fluid is forced on to the projecting prostate, and the urethral orifice is closed. The mechanism is the same—with one exception—whatever may be the variety of the enlargement. Whether there is a middle lobe, or lateral lobe, or a collar, the same valve-action occurs; and the more violent the contraction the more complete is the action of the valve.

3. That in many cases self-catheterism is the only treatment required.

4. That when the catheter treatment fails, or is unavailable, more radical measures are necessary. He admits that he is unable to prove this assertion, but restates his belief that a large proportion of the cases treated by the catheter sooner or later break down—in other words, that eventually the prostatic enlargement is the cause of death.

The breakdown may come soon, or it may come late, but in many cases it ultimately supervenes. The urine becomes thick and ammoniacal; the desire to micturate is continuous; the passage of a catheter relieves but for a few minutes; the suffering and discomfort are constant—day and night; life becomes a burden, and death a happy release. The greatest care cannot prevent this result, and the grossest carelessness does not always induce it.

5. That the treatment, to be effective, should (*a*) for a time thoroughly drain the bladder, and (*b*) permanently remove the cause of the obstruction. It is now some ten or twelve years since perineal drainage was introduced for the relief of cystitis in patients suffering from prostatic breakdown. The relief obtained in this way has been most marked, and the practice is well recognized and established. As soon as efficient drainage is effected the bladder ceases to be a receptacle; urine sweet from the kidneys flows through it; putrefactive changes are prevented, and acute symptoms cease. The relief, however, is only temporary.

6. That these two indications (of drainage and permanent removal of obstruction) are best fulfilled by a suprapubic rather than by a urethral or perineal operation. There are three ways in which it is possible to perform a radical operation for the removal of prostatic obstruction—the urethral, the perineal, and the suprapubic. Of these the urethral appears to be in every way unsatisfactory. In comparing the perineal with the suprapubic operation, he prefers the latter for the following reasons:

1. It is more generally applicable.

2. It can be performed with greater precision, and completed with greater certainty.

3. It insures complete and most efficient drainage. It may possibly be argued by some that the position of the suprapubic wound will prevent drainage, and that the urine will naturally escape more readily through a dependent perineal wound than through one above the pubes. Experience shows that this is not so. Drainage takes place more easily through the soft abdominal than through the hard perineal tissues.

4. It is equally safe. While making this assertion, he thinks it right to draw attention to the fact that it is merely an opinion and does not rest on a statistical foundation; there being no statistics available for the purpose.

The following special points as to the *technique* of suprapubic prostatectomy are founded on an experience of thirty-seven suprapubic cystotomies:

1. The quantity of water injected into the rectal bag, especially in cases where the prostate is abnormally hard, should be smaller than is usually recommended. Each case must be decided on its merits, but six or ten ounces are usually sufficient.

2. The bladder should be irrigated till the antiseptic solution used is perfectly clear. The quantity left in the bladder varies much, from ten to twenty or more ounces. The hand placed on the hypogastrium will show when the distention is sufficient.

3. In cases where the bladder is contracted with thick non-distensible walls, it will usually be inadvisable to perform this operation.

4. It is better to leave a catheter in the bladder till its cavity is opened, as it is a guide that expedites the operation. Care must be taken not to hook the peritoneal fold (superior false ligament) into the wound with the point of the instrument.

5. The linea alba is best divided by incising it immediately above the symphysis, and then dividing upward on a director.

6. Care must be taken to secure the bladder before proceeding to remove the prostate. This is best done by inserting two sutures through each lip of the wound, and fastening it securely to the deeper part of the abdominal wall. When the operation is completed, a third suture passed through the lower angle of the wound is an additional security against urinary extravasation into the retropubic space.

7. The prostate should be removed as far as possible by enucleation with the finger, and not by cutting. The mucous membrane over the projecting portion having been snipped through, the rest of the operation is completed with the finger and forceps. In this way excessive hemorrhage is prevented. A pedunculated middle lobe can, however, be removed by cutting through its base. Hemorrhage is best arrested by irrigation with water so hot as to make it unpleasant for the hand.

8. A large tube should be inserted into the bladder, and the wound united above the tube by a deep and superficial row of sutures. The tube is to be removed in forty-eight hours.

9. The after-treatment consists in keeping the parts clean, and washing the bladder and the wound, in exceptional cases, with a boracic solution.

Mr. Edward Atkinson, who had been the operator in five of the twenty-four cases, strongly supported the conclusions of Mr. McGill. Mr. Jordan Lloyd had operated in three cases, Mr. Bennett May in four cases, Mr. Jessop in four cases. They also, in the main, indorsed the above propositions, Mr. May dissenting from the statement that suprapubic operation insures the most efficient drainage.

Papillomatous Urethritis.

Dr. F. M. Briggs reports in detail (*Boston Medical and Surgical Journal*, October 24, 1889) a case which he originally thought to be one of stricture of large calibre, but later, by endoscopic examination, proved to be one of papilloma, the urethra being studded for nearly five inches with growths of this character. He removed them by Oberländer's method, which he describes as follows:

He uses cotton tampons. The cotton is twisted firmly on the ends of tampon-holders. Having introduced an endoscope to the seat of the growths, he passes down two tampons one after the other, partially withdraws the endoscope and presses the two tampon-holders well against each other. The penis is stretched out, and the tampons, by an up-and-down, slightly twisting motion, ought to catch and pull off the growths. The tampons are withdrawn one after the other, and some papillomata will be adhering to the cotton.

Fresh cotton is reintroduced to the same spots to remove the growths still

there, and this is repeated at the various diseased points of the urethra, until as many growths as possible have been removed. One week later he examines again, and during this time many of the growths which were loosened by the tampons but were not removed, will have been carried out by the stream of urine. If any are left, he repeats his operation (which he calls "tampon-écrasement"), and, if necessary, does so a third time. In regard to these cotton tampons, his directions for making them are as follows: "In order to get a sure result, the tampons must have a definite size, and indeed, such that in the movements among the condylomatous masses they take hold—that is, they can be passed through only with distinct pressure. They ought not to go through too easily or one removes too little; nor should they pass through with too much difficulty, for then one has not room enough in the urethra for two tampons going side by side."

As regards after-treatment, he says, that if symptoms persist after all the growths are out, they are to be treated on the principles of treatment for chronic urethritis, by sounds or by topical applications.

Dr. Briggs sums up:

The symptoms are those of chronic irritation of the urethra. But an accurate diagnosis cannot be made by the symptoms alone. An endoscope must be used and the urethra thoroughly inspected. The prognosis is good; and, for treatment, the writer would recommend, as being both rapid and effective, the removal of the growths through an endoscope with a curette and cotton tampons, in the manner described above. If after-treatment is necessary, injections of permanganate of potash for several weeks. If this is not sufficient, then sounds or topical applications of nitrate of silver.

Excision of the Ankle-joint.

Mr. Arthur Neve details (*Edinburgh Medical Journal* for October, 1889) a case of caries of the epiphysis of the fibula with secondary disease of the ankle-joint, which he approached by the following unusual method: A large posterior curved incision was made down the anterior surface of the fibula for the lower three inches, then back across the heel at the insertion of the tendo-Achillis, and again up the posterior aspect of the tibia for three inches. On the outer side the flap thus marked out was carried down to the bone, and at the back it included the tendo-Achillis, but on the inner side it was only cutaneous. The deeper structures on the inner side—tendons, vessels, and nerves—were dissected off the bone, and turned forward just as is done to certain structures behind the internal condyle of the humerus in excision of the elbow-joint: in the ankle with less difficulty. With the foot powerfully flexed, the posterior surface of the ankle-joint and astragalo-calcaneal joint was then easily accessible. The lower end of the fibula being removed with bone forceps, and the lateral ligaments cut, the whole joint could be inspected. The synovial membrane and various foci of disease were removed. Mr. Neve thinks that, compared with the operation by lateral incision and the anterior incision recommended by Jacobson, it has the following advantages:

1. It gives good visual access to every part of the ankle-joint.
2. Also to the bones composing the joint.

3. As well as to the astragalo-calcaneal joint and upper surface of the os calcis.

4. If the astragalus requires to be excised, no incision would serve the purpose better.

5. The anterior portion of the incision may be made as a diagnostic measure before cutting the flap.

6. The structures cut can be sutured without materially interfering with the strength, utility, or vascular ability of the foot.

7. The wound drainage is dependent.

THE TREATMENT OF HYDRARTHROSIS BY PUNCTURE AND INJECTION.

DR. FALCOZ reports (*Archives Générales de Médecine*, September, 1889) the following method of treatment as having been successfully employed in the service of M. Blum, at the Hôpital Tenon, in cases of hydrarthrosis, whether due to rheumatism or to traumatism:

The diseased joint is first carefully washed with soap, then with sublimate, and in the last place with a mixture of alcohol and ether. A small trocar is used, having first been heated, washed in carbolic water, and then oiled. The joint is punctured from the outside. The synovial fluid is then drawn off and the joint is washed out with carbolic lotion 1 : 20, about 60 c.c. being injected. This fluid is drawn off, the articulation emptied, and the carbolic solution again injected precisely as before. The small opening made by the trocar is occluded by means of a little collodion and the limb is placed in a plaster dressing. At the end of two days the dressing is removed, and if a little of the fluid still remains, energetic compression is applied. It is very seldom the case that after the second dressing, and after a little massage, the limb does not resume its normal state.

Dr. Falcoz summarizes his results as follows: Of 16 hydrarthroses, 13 resulted in complete and permanent cure; 1 of the remaining 3 had an acute arthritis; 1 was treated with tincture of iodine; 1 was still under treatment.

Ten hydrarthroses were treated by simple puncture and 6 by puncture followed by antiseptic washings. One of these hydrarthroses was particularly interesting, inasmuch as the simple puncture brought no favorable result, but the patient was completely cured by puncture followed by injection of the joint.

The conclusion seems justifiable, that the treatment by puncture and injection, inefficacious in cases of acute arthritis, always succeeds in chronic hydrarthrosis. Whether the hydrarthrosis originates under the influence of rheumatism or traumatism is of little importance; the essential factor is that there should be no acute inflammation in the joint, in order that after having freed the articulation of its liquid (as of a foreign substance) the irritating properties of the carbolic acid solution may prevent its re-formation. The operation, without being in the least complicated, exacts very rigorous antiseptic precautions, neglect of which in a hydrarthrosis treated by puncture and injection, could easily transform a simple chronic hydrarthrosis into a purulent arthritis.

OTOLOGY.

UNDER THE CHARGE OF

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An Anthropological Study of the Auricle.

Dr. J. Gradenigo, of Italy, presented a paper on the above subject at the last International Congress of Otology and Laryngology. (*Annales de Maladies de l'Oreille*, September, 1889.)

Two classes of individuals have been examined in these studies, viz., those termed normal individuals, and those classed as insane and criminal.

Besides a critical examination of 650 individuals (350 men, 300 women), Gradenigo examined 25,000 people cursorily, at Turin, viz., 15,000 men and 10,000 women, by a system of observation and noting in large crowds. These came under the first group of so-called normal people.

For the second group, the insane and criminal, necessarily fewer individuals were examined, as follows: 330 insane (180 men, 150 women), 76 crétins (50 men, 26 women), 120 typical criminals (82 men, 38 women).

The principal types were classified as follows:

I. Adherent lobes, simple or elongated; under this head is included absence of the lobule.

II. Prominent auricles (*oreilles à anse*), with varieties.

III. The "Wildermuth ear," in which the auricle is characterized by a prominence in the anthelix greater than that in the helix.

IV. The "Macacus ear," in which is found an uncurved and pointed helix at the upper posterior edge (something like the "pointed ear" of Darwin).

V. Combination of the adherent lobe with the prominent ear (*à anse*).

VI. Combination of the adherent lobe with the "Wildermuth ear."

The results are as follows:

	Men.	Women.
Adherent lobes . . .	28 per cent.	22 per cent.
Prominent ears (*à anse*) .	12.15 "	6 "
Wildermuth ears . .	6 "	9.12 "

Prominent ears, therefore, are half as frequent in women as in men, whereas the "Wildermuth ear" is more frequent in women. It is furthermore stated that the percentage of anomalies of the auricles varies according to the country, the city, the social position, and even the age. Thus prominent ears (*oreilles à anse*) are found in 25 per cent. of children, while in adults only 12.15 per cent.

Investigations as to the Hearing of School Children.

The *British Medical Journal* of September 28, 1889, in commenting upon investigations of Dr. Thomas Barr, of Glasgow, as to the hearing of school

children, gives the following results of similar investigations in different countries:

	Children examined.	Found defective
Sexton, New York	570	13.00 per cent.
Weil, Stuttgart	4,500	33.37 "
Moure, Bordeaux	1,768	17.0 "
Bezold, Munich	1,885	22.0 "
Barr, Glasgow	600	27.66 "

Dr. Barr found "twice as many with defective hearing among backward children as among forward children." His conclusions are:

"1. Teachers should keep in view the fact that in every class of fifty children there are probably about a dozen or more who have some defect of the hearing, and are, therefore, placed at a disadvantage as compared with their normally hearing fellows.

"2. Children who are known to suffer from defective hearing should always occupy a position on the bench nearest the teacher; and if the defect is limited to one ear, the child should be placed so that the better ear shall be turned to the teacher.

"3. Children whose hearing is extremely defective, or who are totally deaf, should not be placed in the ordinary classes, but should be taught in a separate class by one who is qualified to teach the German method of articulate speech and lip-reading.

"4. In cases of children whose progress is unsatisfactory, and who are inattentive, dull, and idle, the capacity for hearing should be ascertained by proper tests, and if defective hearing is found, information of the fact should be sent to the parents, and the children's position in the class so arranged as to minimize the bad effects of defective hearing.

"5. If the ear disease from which a child suffers is attended by a discharge of matter from the interior of the ear, the child should cease to attend school until a doctor's certificate of fitness is furnished by the parents.

"6. In all schools the head-masters should issue stringent instructions to the assistants or pupil teachers, that boxing the ears must never, on any account be practised on children.

"7. In the construction of new schools, it is desirable that the class-rooms should not exceed twenty feet in length or breadth, or better, that their shape should be that of a parallelogram, with a long side of twenty-five feet and a short side of fifteen feet, the teacher occupying the position of centre of one of the short sides, and that the number of scholars in one class and room should not exceed fifty. If, as is frequently the case, the teacher stands in the centre of the parallelogram, especially in a long room, the children to the right and left are badly situated for hearing.

"8. In the selection of a site for a new school, a position should be chosen as far removed as possible from noisy works or main thoroughfares; the class-rooms should be situated as far as practicable from the public streets, and they should not lead directly off main staircases.

"9. The wall separating class-room from class-room, or from a staircase, should be sufficiently thick, and of such material as to form bad conductors of sound. Wood, especially fir, is obviously unfitted for entering into the construction of such partition-walls.

"10. In order to guard against colds in the head, a common source of deafness in school children, class-rooms should be supplied with sufficient appliances for ventilation to do away with the necessity for opening windows when the class-rooms are occupied by the children."

On Aprosexia, being the Inability to Fix the Attention, and Other Allied Troubles in the Cerebral Functions Caused by Nasal Disorders.

This was the title of an interesting paper read by Dr. Guye, of Amsterdam, in the Otological Section of the British Medical Association, at Leeds, August, 1889 (*British Medical Journal*, September 28, 1889). The author said that for a long time past he had "made a point of studying the impairment of the cerebral functions by disorders of the nose," and he has given the name of "aprosexia" to one of the symptoms, which seems to be, next to headache, the elementary and generally the initial symptom. Aprosexia is the inability to fix the attention on any definite, more or less abstract, subject. It is claimed that "it is with aprosexia as with giddiness in aural vertigo." If ear patients are asked whether they suffer from giddiness, the surgeon will receive an affirmative answer in many cases, perhaps in the majority. If he examine carefully he will find, where giddiness is present, a relation between it and the ear disease. So a number of cases of nasal obstruction may be treated on account of secondary *aural* or *laryngeal* lesions, but aprosexia will not be found out unless inquired for. The aurist will be astonished at the number of cases of aprosexia if he inquires for them. It is of more importance still that medical men in general practice be impressed with the frequency of that relation, and that they make it a rule in every case of habitual headache and inability to work, and loss of memory, to inquire after the state of the nose, and to ascertain if the normal nasal respiration be not impeded, and habitually or temporarily superseded by breathing through the mouth.

A number of cases are then given of headache and inability to study, cured permanently by local treatment of the nose and naso-pharynx, which restores the normal nasal respiration. The majority of cases were boys and young men.

Aprosexia as a symptom of cerebral exhaustion is thus explained by Guye: This exhaustion must be due either to the fact that the nutrient matter required for repair in the brain is not sufficiently procured or assimilated, or the products of the "tissue-change" which have to be eliminated are incompletely removed. This removal will have to take place, partly, at least, by means of the lymph vessels. Now, large lymph vessels leave the cerebral cavity, together with the fibres of the olfactory nerve. "It is highly probable that structural changes in the nasal mucous membrane, and especially such as will exert pressure on the lymphatics, will impair or prevent the current of the cerebral lymph through the nasal mucous membrane. The retention of the products of the chemical processes in the tissues of the brain will lead to results which we may expect to be the same as those of physiological exhaustion—that is, fatigue."

Beside structural changes, local hyperæmia, often seen as a nasal reflex, will be apt to produce the same pressure on the lymphatics.

Headache, often found in disorders of the nose, is thus explained: "The air contained in the cavities communicating with the nose will be reabsorbed, and so its pressure diminished, as soon as its free communication with the nose is impaired by the swelling of the mucous membrane inducing a hyperæmia *in vacuo*."

Three forms of aprosexia are enumerated—viz.: 1. Physiological aprosexia, the result of cerebral overexertion or fatigue. 2. Neurasthenic aprosexia, where the cerebral exhaustion is produced by abnormal irritability and restlessness; and, 3. Pure nasal aprosexia, where the exhaustion is produced by the retention of products of tissue-change. Then follow some directions as to treatment, consisting in the application of astringent sprays to the nose, cauterization of the turbinated bodies with nitrate of silver, and the removal of cartilaginous obstructions by surgical operation.

On Some Causes of Backwardness and Stupidity in Children.

Mr. William Hill, of St. Mary's Hospital, London, read in the Section of Otology, British Medical Association, Leeds, August, 1889, a paper with the above title, and bearing on the subject of the foregoing paper. He said: "The fact that children the victims of nasal and pharyngeal obstruction often suffer from headaches, especially when engaged in study, and frequently evince marked inability to fix the attention on their lessons or work for any length of time, has in recent years led many to suspect that these symptoms were not altogether due to the deafness . . . but were in part a reflection of some evident hampering of the cerebral functions."

The author's views as to the physical origin of aprosexia agree with those of Guye. He goes a step further, however, in his explanation, as follows: "Ferrier has pointed out that extirpation of the prefrontal lobes in monkeys is followed by a marked impairment of the faculty of attention and observation, and it is not unreasonable to suppose that aprosexia and other symptoms associated with lymphoid overgrowths and obstructions in the nose and pharynx are the outcome of lymphatic and venous stagnation and tension in the structures occupying the anterior region of the cranium." He also found that idiots, excepting the hydrocephalic, with low, sloping foreheads, indicating a small size of the anterior lobes of the brain, are nearly all mouth-breathers, and victims of some form of nasal or pharyngeal obstruction. "Many are deaf, all are aprosexic."

He then propounds the question: "Do want of cerebral development on the one hand, and morbid conditions of the nose and pharynx on the other hand, in strumous and syphilitic subjects, have a casual or a causal relationship? Does lymphatic stagnation within the cranium, as the result of hypertrophy and abeyance of the secretory functions of the tonsils and other lymphoid glands of the nose and throat, interfere with cerebral development and function?" If this question can be answered in the affirmative, it behooves physicians to pay more attention to nasal and pharyngeal lymphoid obstruction in very young individuals, if the number of deaf stupid children is to be lessened.—*British Medical Journal*, September 28, 1889.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

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Intra-laryngeal Aërial Cyst.

Dr. G. Ledderhose reports a case (*Deut. Zeitsch. f. Chir.*, 1889, Bd. 29, H. 4, S. 411) in which he performed laryngotomy to remove an aërial cyst composed of the ventricle of the larynx. Four years before, in the twenty-sixth volume of the *Zeitschrift*, he had reported a case of aërial cyst the size of a child's fist on the right side of the throat of a man fifty-eight years of age. The cyst was readily dispersed by pressure, but reformed under speaking, coughing, and swallowing. It was regarded as an extra-laryngeal prolongation of the right laryngeal sac, a formation analogous to the upper portion of the so-called laryngeal sac of the gorilla. As great dyspnœa was produced whenever the sac filled with air, and especially at night, it was extirpated by Prof. Lucke after ligaturing its pedicle, which protruded from the larynx through the hyothyroid membrane.

There was also a second tumor seated sessilely on the right inner wall of the larynx. It was of the bulk of a hazelnut, and its upper wall was lost in that of the right aryepiglottic fold. On puncture through the mouth on several occasions, it discharged air and clear colloid-looking material.

In February, 1889, the patient complained of suffocative attacks occurring regularly during sleep, so severe on several occasions as to have required artificial respiration to revive him. On examination the external wound gave no signs of a recurrence. The intra-laryngeal tumor projected beyond the median line and stretched back posteriorly into a fold of membrane which swayed back and forth in the phases of respiration. On splitting the larynx open, after preliminary tracheotomy, the tumor was found to have collapsed completely and to lie as a loose sac on the border of the epiglottis. It was surrounded with a ligature and then cut out at its base.

The intra-laryngeal tumor was a protrusion of the upper end of the laryngeal sac, the outer wall of which was in part formed of the hyothyroid membrane.

In accounting for the suffocative attacks at night and freedom therefrom in daytime, the author advances the theory that during daytime the sac continued distended with air, which kept it above the glottis; but at night, after a long rest from speaking, coughing, or swallowing, the sac collapsed, and either fell over the glottis or between the vocal bands, and thus obstructed the air-passage.

A cyst of the laryngeal sac projecting both externally and internally is unique in the history of lesions of the larynx.

Fatal Hemorrhage by Erosion of the Innominate Artery after Tracheotomy.

In an article by Prof. Friedr. Ganghofner (*Prager med. Wochenschr.*, Nos. 16, 17, 1889), he first reports an instance occurring in a girl seven years of age, on the eleventh day after an inferior tracheotomy for diphtheria. Everything was going on well apparently, when suddenly a stream of blood issued from mouth, nose, and canula, literally deluging the patient, and producing death in a few minutes. There was a small ulcerated perforation in the centre of the circumscribed thinned and browned area of the innominate artery just beneath the departure of the right subclavian. The injury had been caused by the canula.

A second case of death by hemorrhage twenty days after inferior tracheotomy for diphtheria in a child four and a half years of age is also reported. Here profuse hemorrhage suddenly took place from beneath the wound, and ceased on the occurrence of complete apnœa after removal of the canula. Artificial respiration was practised; but with the commencement of the restoration of breathing profuse hemorrhage recurred, with death in convulsions in a few minutes. An erosion was found on the median wall of the innominate artery directly opposite the departure of the right subclavian. In this case there was an abnormal origin to the left carotid and to the right brachiocephalic trunk; both vessels springing from a common trunk which appeared to elevate the position of the innominate a little.

These two cases occurred in rapid sequence; although in the year previous, out of 165 tracheotomies, but one death had occurred by hemorrhage, the source of which was not ascertained because a post-mortem examination had not been permitted.

Ganghofner then reproduces a number of similar cases from the journals, and concludes that erosion of the innominate is a danger always to be dreaded in inferior tracheotomy on account of the frequent anomalous origin of the artery, by reason of which it crosses the trachea at such a high point as to be exposed to friction by the canula. Furthermore, the descent of pus from the inferior angle of the tracheotomy wound may extend to the vessels and result in ulceration of its walls without any injury from the canula.

Attempts have been made to avoid these dangers by the use of hard-rubber canulas in place of metallic ones. Even this does not always succeed, inasmuch as the curve of the canula may become changed by long usage.

[It may be permitted the compiler to state that he has never met with an accident from erosion by the canula, whether of the mucous membrane of the trachea or of the innominate, and that he has always performed the inferior tracheotomy when not contraindicated. He early adopted the rule of changing his canulas every day, using canulas of different lengths on the alternate days, the smaller of the pair in use being no longer than is absolutely necessary for secure engagement in the vertical axis of the trachea, and the other but a few millimetres longer. In this way permanent friction at any one point is avoided, even when the canula touches the tracheal surface. Care is always taken to provide a canula which shall play freely in the trachea without impinging on its walls. In city practice a suitable canula can always be made in a day or two, and meanwhile the plate can be so propped in any direction as to clear the extremity of the canula from the wall of the trachea.—Ed.]

Electrolytic Treatment of Chronic Pharyngeal Catarrh.

Kafemann, of Königsberg, extols (*Deutsche med. Zeitung*, No. 70, 1889) electrolytic treatment of the lymphoid nodules of the pharynx and of the salpingo-pharyngeal indurations, by a combined electrocaustic and electrolytic treatment somewhat more intense than that recently advocated by the lamented Voltolini. He uses shorter and stronger needles than Voltolini did, and in greater numbers. For the lymphoid nodulations in the pharynx he employs two insulated wires bound together, each of which is tipped with two or three gold points two millimetres in length. For the salpingo-pharyngeal thickenings, the ends of each wire are bent at a right angle and soldered to a plate of metal four millimetres in breadth, which is armed on both sides with six gold points three millimetres in length. The instruments are carefully insulated up to the gold point. With these electrodes an intense and efficacious multiple electrolyto-caustic effect is produced in a short time, say from ten to sixty seconds, according to the irritability of the parts and the density of the morbid tissues. The different effects of the positive and negative poles of the electrode are beautifully exemplified in this method of electrolysis; the dry, hard, and black eschar from the positive element being in marked contrast to the adjoining moist, soft, and white eschar of the negative element. The tissues between will have undergone some amount of electrochemical decomposition. The method is much less painful and protracted than electro-cauterization, and requires no more frequent repetition; and, from personal experience, we can, in the majority of cases, safely commend it in preference.

Syphilitic Stenosis of the Pharynx.

B. Fraenkel presented to the Laryngologische Gesellschaft zu Berlin, 10 Mai, 1889 (*Deutsche med. Wochenschr.*, No. 32, August 8, 1889), a lad, seventeen years of age, with an adhesion of the soft palate to the posterior wall of the pharynx, and, in addition, with a membranous adhesion between the base of the tongue and the posterior wall of the pharynx. When the patient came under Fraenkel's care there was a membrane spread out between the base of the tongue and the wall of the pharynx. The orifice was so contracted as barely to permit the passage of the head of a probe. There was marked stridor. Solid nutriment could not be swallowed. The membrane was split, and a tolerably large opening made, through which the stump of the epiglottis was seen, about the size of a bean. Ulceration ensued, destroying the membrane and the stump of the epiglottis. When this healed, it left a membranous cicatrix between the root of the tongue and the posterior wall of the pharynx, with a central opening smaller than a bean. This was split with the knife and dilated with bougies. When the opening exceeded a certain size, aliment escaped into the larynx; and, therefore, although stridor occasionally occurs, it became necessary to keep the opening no larger than was necessary for respiration. As the patient had had a syphilitic wetnurse, it was not possible to determine whether his own syphilis had been congenital or acquired.

Extensive Keratoid Papillary Growth of the Nares.

O. v. Bunger, of Halle, describes (*Deutsche med. Wochenschr.*, August 28, 1889) an extensive hard papillary tumor of the upper portion of the nasal passages, preceded by psoriasis of the mucous membrane in a long-standing case of ozæna. The patient, a man, sixty-five years of age, had two severe wounds of the nose in childhood. Since puberty he had suffered continuously with ozæna. For six months his nose had been gradually becoming more and more occluded upon both sides, so that he was compelled to breathe permanently through the mouth. The skin of the dorsum of the nose was circumscribedly reddened and infiltrated. Both nasal passages were completely occluded by a peculiar tumor, which was characterized by its hard consistence, dendritic division, and white surface. It was larger than a hen's egg. It completely filled the upper portion of the nasal cavities, reaching from the orifice to beyond the choana, so that it could be distinctly felt behind the soft palate. Its lower margin lay anteriorly one and a half centimetres above the nasal apertures, on both sides of the septum, so that the tumor at this point invaded but little the zone of mucous membrane covered with squamous epithelium. It had produced by pressure a perforation of the cartilaginous septum as large as a three-cent piece. The glands in the lymph territory of the nose were not swollen.

After removal of considerable quantities of overlying sebum-like masses, the tumor presented an appearance analogous to that of hard and dry condyloma of the penis. The infiltrated portions of the soft palate of the dorsum of the nose soon broke down and became perforated by the pressure of the tumor from within, so that it became necessary to remove it. Prof. von Volkmann split the nose in the middle line, after the method of Dieffenbach, nasal bones included. The infiltrated soft parts of the dorsum were excised in oval incisions, and the tumor was separated with the scissors from both sides of the septum, and then carefully detached from the ethmoid bone, into the cells of which it had penetrated so far that the greatest caution was necessary to avoid making an entrance into the cavity of the skull. At no point did the tumor involve the anterior wall of the nose or the lateral walls. The greatest portion of the septum, except its inferior portion and a small strip posteriorly, was cut out, and the cavity was tamponed with iodoform gauze. The external wound readily united, there was no reaction, and the patient was discharged cured on the nineteenth day. For three months later, small continuous recurrences presented in the nasal passages, but for seven later months the patient had remained free.

A number of interesting histological changes were noted in the mucous membrane of the septum, for details of which the original article must be consulted. We will mention a change into squamous of the cylindric and ciliated epithelium of the entire upper portion of the nasal cavity.

Croupous Fibrinous Rhinitis.

Dr. Seifert, of Wurzburg, has related (*Deutsche med. Wochenschr.*, August 8, 1889) an instance in a man, seventy-one years of age, under treatment for ichthyosis, and in whom, at the close of a pneumonia, a fibrinous exudation

occurred on the mucous membrane of the bronchi, trachea, larynx, pharynx, and nose. Tracheotomy was of no avail, death having occurred twenty-four hours after the operation. The microscopic preparations showed merely a fibrinous exudation upon intact epithelium, by no means a diphtheritic membrane. The only microörganisms were colonies of cocci.

Osseous Occlusion of the Choanæ.

B. Fraenkel has reported (*Deutsche med. Wochenschr.*, August 3, 1889) a case of complete bilateral occlusion of the posterior nares in a youth, eighteen years of age. The septum narium projects a little way into the cavity of the pharynx, located upon a yellowish wall which covers the passages like a curtain on both sides, and on which some ramifying bloodvessels are visible. The membrane can be seen from the front, likewise, as the turbinate bodies are atrophied. Palpation shows that the membrane has an osseous base. The patient cannot smell at all. Taste is very slight; sweets can be recognized, and occasionally bitters. The thorax is distended above and constricted below. A slight degree of essential emphysema exists.

Coarctation Stricture of the Œsophagus with Fistule.

Dr. Jul. Heddaeus, of Idar, relates (*Berl. klin. Wochenschr.*, September 9–16, 1889) an interesting case of an agate-grinder who had consulted him from time to time since 1869 for various affections incident to his vocation. These included costal periostitis from pressure against his bench, with abscesses over the ribs and over the clavicles, pleuritis, and ulcerative pneumonitis. After having suffered with cough for a long time, he was seized almost of a sudden in May, 1888, with dysphagia, accompanied with painless retentions of solid food in the œsophagus. The sputa were occasionally hemorrhagic, and the cough so severe that it often led to emesis, with discharge of the entire contents of the stomach. A sound, thirteen millimetres in diameter, encountered a readily permeable obstruction of a few centimetres in length just above the bifurcation of the trachea. The difficulty increased, despite occasional improvements from the use of the sound. Laryngostenotic breathing came on, and the larynx no longer moved downward on inspiration. The sputa became colored like prune juice, and finally fluids swallowed escaped by the larynx, so that the patient recognized that a fistulous communication must have been made between the food-passage and the air-passage. When a catheter reached the point of stricture, air audibly passed through it on rapid expiratory movement or on coughing. The patient died November 6th.

The bronchial glands were diseased and purulent in front of the œsophagus and behind, and a fistule large enough to admit the end of the little finger was found between the œsophagus and trachea, both passages otherwise showing nothing pathological.

Empyema of the Maxillary Sinus.

Dr. Alfred Friedländer relates (*Berliner klin. Wochenschr.*, September 16, 1889) a number of cases from Krause's clinic, in which remarkable success was obtained in a few weeks by penetrating the antrum from the lower meatus

with a trocar, and methodic insufflations of iodoform after thorough syringing with a boric solution. Krause's method is as follows: After thorough cocainization of the meatus, the trocar is introduced with its tip directed against the exterior wall, until the canula presses the membranous septum toward the opposite side of the nose, and then it is forced from one-half to one centimetre into the antrum. Experience has shown that this method of introduction places the trocar at the thinnest point of the osseous wall of the antrum, and renders it easy to find the opening afterward. The penetration being made, the trocar is withdrawn, and the canula is connected with rubber tubing with a handball intervening. Then the antrum is syringed with a borax solution until all pus has been expelled through the natural opening in the nasal passage. When the solution flows clear out of the nose, the tubing is taken out of the solution and air is driven in until it escapes freely by the nose. The handball syringe is then withdrawn, and a powder-blower substituted filled with finely powdered iodoform, and this is propelled by twenty or twenty-five squeezes of the bulb, so as to cover the entire surface of the cavity with the powder. Should no more pus escape by the natural passages, no further syringing is done, but the insufflation of the powder alone is repeated at intervals of two days. Should pus continue to be discharged, the insufflation is preceded by syringing. Several cases appear to have been thoroughly cured by a treatment of two weeks' duration, or a little longer. Iodol powder did not produce as good results as the iodoform.

OBSTETRICS.

UNDER THE CHARGE OF

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Chorea in Pregnancy.

Jones (*Transactions of the Obstetrical Society of London*, vol. xxxi., 1889) reports a case of chorea in pregnancy complicated by acute mania, which ceased after induced labor. The fœtus was at seven months and decomposed. An attack of sepsis followed emptying the uterus, from which the patient fully recovered.

Also a case of chorea in pregnancy, with delirium and delusions, followed by paralysis of the left arm. Complete recovery followed confinement. Excessive functional instability of the nerve centres was thought to be the pathology of these cases.

The Determining Cause of Labor.

Girin (*Archives de Tocologie*, No. 8, 1889) finds that the amniotic liquid attains its maximum density during the early months of pregnancy, when it

is 1.030. It diminishes steadily until term, when it is nearly that of water. The specific gravity of the fœtus is at first lower than that of the amniotic liquid, but becomes steadily higher. The fœtus, sinking to the os internum, excites the uterus to contraction by the reflex stimulation caused by pressure.

The Cause and Effects of Rupture of the Membranes.

Eisenhart (*Archiv für Gynäkologie*, Band 35, Heft 3) has studied this subject carefully in 2289 labors. His conclusions are as follows: the membranes rupture most frequently in primiparæ in the first stage of labor; then in the second, and finally at the end of the first, when the os is fully dilated. Up to the fifth labor the membranes rupture late in labor with multiparæ; in subsequent labors, earlier. Age is a factor with primiparæ, the older the woman the earlier rupture occurs. Contracted pelvis, a purulent discharge, anæmia, and tuberculosis, favor early rupture of the membranes; as does also eclampsia. Abnormal fœtal positions favor early rupture of the membranes, partly because of increased tension, and also because of frequent examinations during such labors. As the child's weight increases, the membranes rupture later; short children often favor early rupture, as do twins.

Labor is longer in primiparæ the later the membranes rupture; in multiparæ shorter the later rupture occurs. The earlier rupture occurs the greater the suffering with the pains, and the stronger the reflex stimulation. Hemorrhage during the expulsion of the placenta in primiparæ is rare the later the membranes rupture; the reverse is true with multiparæ. Injuries to the maternal soft parts generally occur when the membranes rupture before the os is as large as half a dollar. Early rupture of the membranes most often leads to conditions calling for operative interference. Complications of the puerperal state are most frequent when the membranes rupture early. Macerated children generally rupture the membranes late; early rupture favors asphyxia.

Recurrent Ulceration of the Cervix Uteri during Pregnancy.

Chrobak (*Centralblatt für Gynäkologie*, No. 36, 1889) described a case of induration of the cervix during pregnancy, with ulceration. Labor was induced at eight months, and the affected surfaces excised shortly after.

In a second pregnancy, two and a half years later, a similar induration appeared, followed by abortion at the tenth week, and the disappearance of the affection. Microscopic examination of the excised tissue showed new formation, which was probably syphilitic or cellular growth from the stimulation of pregnancy—cancer and tubercle were excluded.

The Treatment of Occipito-posterior Positions.

Bataillard (*Annales de Gynécologie*, August, 1889) has collected 400 cases of occipito-posterior positions; 353 of these cases became occipito-pubic positions by spontaneous rotation. In primiparæ when the child weighed from five to six pounds, labor was two hours longer than in anterior positions; from six to seven and a half pounds, it was three and a half hours longer. With multiparæ labor was shorter when the fœtus was comparatively large

The treatment employed when rotation failed was the introduction of the antiseptic ized hand to effect rotation; this usually dislodged the head from the sacrum, and if further rotation failed the forceps was applied to the sides of the head and rotation was completed. Tarnier's forceps was especially useful in these cases. The maternal mortality of these cases was 0.5 per cent.; of 660 contrasted cases of occipito-anterior position, 0.46 per cent.; fœtal mortality in occipito-posterior positions was 2 per cent.; in anterior positions, 0.76 per cent. It was necessary to apply forceps at the superior strait in 6 per cent. more cases than in anterior positions.

Fibroma Uteri complicating Pregnancy; Laparotomy; Recovery.

Gordon (*Boston Medical Journal*, October 17, 1889) reports the case of a primipara about three months pregnant, who suffered from severe pelvic pain on the right side. Examination revealed a small elastic tumor in the right side of the pelvis; the os and cervix denoted pregnancy. In the middle line above the pubes was a hard growth as large as a pregnant uterus at two months. Laparotomy showed an ovoid fibroid, with sessile attachment to the front of the uterus. The peritoneum was divided high up around the tumor and the mass was enucleated. The uterine wall was left very thin and vascular, but hemorrhage was controlled by stitching the peritoneum and base of the wound with fine catgut.

When the fibroid was removed, the fundus uteri, which had been displaced laterally, assumed its normal position. Recovery was rapid and pregnancy uninterrupted. At labor uterine pains were severe and the patient had several convulsions near the close of labor. Mother and child recovered well.

Incarceration of the Gravid Uterus at Seventh Month, with Spontaneous Reposition.

Sperber (*Centralblatt für Gynäkologie*, No. 36, 1889) reports the case of a multipara in whom symptoms of retroflexion and incarceration of the uterus began at four months, with interference with the functions of the bladder and rectum, pain, distention of the abdomen, œdema of the lower extremities, followed by severe pain in the pelvis; a diagnosis of extra-uterine pregnancy was made. Careful examination, however, revealed a greatly distended bladder, with retroflexion and incarceration of the uterus. Apparent labor pains came on, which were relieved by opium; after uterine contractions had persisted forty-eight hours, spontaneous reposition occurred with the disappearance of the symptoms.

Two Rare Deformities complicating Labor.

Strazalko and Eliasberg (*Centralblatt für Gynäkologie*, No. 34, 1889) report the case of a monstrosity complicating labor, which presented by the liver and intestines. Traction upon an arm delivered the fœtus, which lacked a portion of the posterior wall of the trunk; there was no pelvis, and no sexual organs. In a second case, the trunk was retained after the head was born. An ignorant attendant severed it by traction. Great ascites was found to be the cause of delay; a slender sharpened stick was passed through the

neck, through the thorax and diaphragm, and a free evacuation of fluid followed. The trunk was then expelled spontaneously.

Hydrocephalus and Rupture of the Uterus.

Herzfeld (*Centralblatt für Gynäkologie*, No. 36, 1889) describes the case of a multipara brought to his clinic in collapse with uterine tetanus, the cervix dilated. The hydrocephalic head was perforated, two quarts of serous fluid evacuated, and delivery effected by the cranioclast. Rupture of the uterus in the left portion of the cervix, with prolapse of the intestine, was found after delivery. Drainage with iodoform gauze was made; the patient died in forty-eight hours from suppurative peritonitis. Post-mortem examination revealed uterus bicornis, with rupture and separation of the uterus from the peritoneum and broad ligament.

An Obstetrical Study of the Levator Ani Muscle.

Dickinson (*American Journal of Obstetrics* for September, 1889) contributes a well-illustrated study of the anatomy and action of the levator ani muscle. By introducing cylinders of modelling wax into the vagina and having the patient voluntarily contract the muscle by straining, he studied the contractions graphically with the following results: The distance from the vaginal orifice to the inner edge of the levator averages less than half an inch (1.2 c.m.) The double band of the muscle is always sharply defined. The more the levator is stretched the closer the strong edges of the horizontal belly are brought together. The contraction of the muscle crowds the penis against the cervix during coition; the vaginal outlet remains quiet, while the upper portion rises 15° or 20° toward the brim. A dynamometer test of the strength of the muscle gave an average of 10 pounds, occasionally 27. It is especially strong in muscular and erotic women, in those with wide pelves, and in those suffering from painful lesions about the vulva and vagina.

He adds two cases of laceration of the pelvic floor which illustrate the efficiency of the muscle in preventing rectocele, and has collected five cases of labor delayed by the spasmodic contraction of this muscle, to which he adds one from his own observation.

Abdominal Pregnancy, with Operation.

Sacré (*Proceedings of the Obstetrical Society of Brussels*, July 21, 1889) reported an abdominal pregnancy in a patient, aged twenty-two, who had ceased to feel fœtal movements for a month. On laparotomy the fœtal sac was divided into two parts, the anterior filled with dirty fluid, the posterior contained the fœtus; the partition dividing the sac was adherent to the fœtus. The sac was irrigated with boric acid, and stitched to the abdominal wall. Eight days after the operation a mass of feces was discharged from the sac, showing a fistula with the colon. Recovery ensued, the wound healing by granulation; at the time of reporting a small fecal fistula remained.

Fraipont (*Ibid.*) described two cases of abdominal pregnancy in which a decomposed fœtus was found encysted in the abdominal cavity. The parietal peritoneum was adherent to the fœtal sac. The placenta lay in front, and

an attempt to remove it caused hemorrhage. It was left, with the fœtal sac, which was irrigated with mercurial solution and tamponed with iodoform gauze. Fever declined at once after the operation, and recovery followed in both cases in two months.

Tubal Pregnancy.

Lusk (*New York Medical Journal* for October 19, 1889) reports the case of a multipara suffering from attacks of cramps, nausea, and vomiting, with sero-sanguinolent vaginal discharge. Collapse supervening, the patient was conveyed to a hospital. Examination revealed the uterus pressed to the left, irregular masses of soft consistence to the sides and posterior to the uterus. Laparotomy revealed the pelvic cavity full of clots, dark fluid blood in the peritoneal cavity. The left tube was enlarged near the fimbriated end. Hemorrhage came from a sac in the broad ligament, ruptured into the peritoneal cavity. Tube, sac, and ovary were ligated and removed by thermo-cautery; the pedicle was dropped. The right tube and ovary were healthy. Abdominal irrigation and a large drainage tube were employed. Sero-sanguinolent discharge lasted for four days; recovery resulted. The embryo was six weeks old.

A second similar case recovered from the operation, but died eight days after from nephritis and uræmia. He also describes two cases treated by faradic electricity, the positive pole externally, the negative internally for five minutes by rectum and vagina twice daily. The tumors shrank to small size in a week, and complete recovery followed. One of the patients has since borne two children without complication.

Concealed Pregnancy Undiscovered by Laparotomy.

Vander Veer (*Journal of the American Medical Association*, October 19, 1889) reports a case of multiple fibro-myxomata of the uterus extensively adherent to the bladder and intestines. Laparotomy revealed the impossibility of removing the mass. On the tenth day after operation the patient aborted (four months). Death from exhaustion ensued. Pregnancy could not be diagnosticated before abortion. Vander Veer has collected sixty-nine cases of pregnancy complicated by foreign growths in which pregnancy was not diagnosticated before operation; five cases of pregnancy in bicornated uteri not diagnosticated before operation; and eleven cases of pregnancy uncomplicated by new growths, which was not diagnosticated before operation.

The Technique of Cæsarean Section.

Veit (*Centralblatt für Gynäkologie*, No. 30, 1889) has found by experiments on animals and observations on the human subject that the peritoneum heals perfectly when not joined by turning its edges in by separate suture, as in Sänger's method; union takes place by the formation of cellular tissue between the incised portions. He would operate before pains become strong.

Leopold thought it not always necessary to join serous surfaces separately, but had found them firmly healed seven days after operation. As regards the time of operation, he had operated six hours after pains began; the oper-

ation was typical, after Sänger's method. The patient died from intra-abdominal hemorrhage, the blood having oozed between the folds of serous membrane covering the incision.

Cæsarean Section for Primary Carcinoma of the Vagina.

Hawley (*New York Medical Journal* of October 19, 1889) operated by Cæsarean section at seven and one-half months on a multipara suffering from primary carcinoma of the vagina. The mother died of sepsis from the cancer on the fourth day. The uterine incision had closed perfectly. The child died suddenly a few hours later. The mother was under observation several months, but operation was delayed in the child's interests.

Cæsarean Section for Contracted Pelvis; Catgut Suture; Recovery.

Müller (*Centralblatt für Gynäkologie*, No. 39, 1889) reports a successful Cæsarean section (Sänger) in which all sutures were catgut. It was prepared in one per cent. bichloride of mercury; twenty-four hours in oil of juniper; twenty-four hours in glycerine; preserved in absolute alcohol.

Amputation of the Uterus for Pregnancy after Cæsarean Section.

Kufferath (*Proceedings of the Obstetrical Society of Brussels*, July 21, 1889) reported the case of a woman with highly deformed pelvis, on whom Cæsarean section had been done successfully. She became pregnant again, and on examination it was not thought safe to allow pregnancy to go to term for fear of rupturing the uterine cicatrix. The Porro operation was successfully made; the child died.

Two Porro Operations for Hemorrhage after Cæsarean Section.

Russ (*Archiv für Gynäkologie*, Band 35, Heft 3) reports two Cæsarean sections (Sänger) in Wyder's clinic at Zurich, in which persistent hemorrhage after the uterine suture had been completed made amputation of the uterus imperative. In each case the elastic ligature was used, and remained tightly drawn about the cervix for thirty minutes; hemorrhage followed its removal. The application of heat, uterine massage, and ergotine injections failed to secure uterine contraction. In the uterine amputation the cervical mucous membrane was excised; the stump was closed by heavy catgut; bleeding checked by Paquelin's cautery and by the separate ligation of bleeding vessels, and the peritoneum was stitched over the stump, which was dropped into the abdomen; no drainage was employed.

Both patients recovered; one had thrombosis of a vein in the thigh, which disappeared without serious consequences. Although other operators have allowed the elastic ligature to remain for thirty minutes without secondary hemorrhage, in these cases paralysis of the uterine muscle was probably produced by the ligature.

Russ also reports the case of a primipara pregnant with twins, whose labor was complicated by a myoma on the posterior wall of the cervix as large as a

fist. It was decided to allow labor to proceed spontaneously, in the hope that the tumor would be displaced by the head. As the expulsion of the first child failed, craniotomy was performed, followed by version and extraction of the second child, which survived.

The case illustrates the fact that cervical fibromata of moderate size are commonly displaced by the fœtus, making spontaneous birth possible.

The Development of Placenta Marginata.

Klein (*Centralblatt für Gynäkologie*, No. 40, 1889) believes that the decidua circumflexa becomes hypertrophied, forming a thickened ring, aiding in the nourishment of the villi, occasionally persisting until the end of pregnancy, and aiding in the formation of placenta prævia. This mass atrophies at the second month, forming a firm yellowish ring about the ovum at the placental border, forming ultimately placenta circumvallata, and, finally, placenta marginata.

The Placenta in Extra-uterine Pregnancy.

Hart (*Edinburgh Medical Journal* for October, 1889) has studied minutely the placenta in various forms of extra-uterine pregnancy, and concludes as follows: In tubal pregnancy the villi lie in decidual cells, no intervillous sinus system existing. Large sinuses are formed in the muscular wall, the villi are well formed, the decidual cells are large. In broad ligament placentæ the villi are less perfect, blood is extravasated, the decidual cells are few. In abdominal pregnancy, the placenta in the pelvic connective tissue, there is an attempt at a placental sinus system; in abdominal pregnancy with extreme displacement of the placenta it becomes organized blood-clot, with distorted villi, no decidua and no villous sinuses.

In general the placenta in extra-peritoneal pregnancy is reduced to compressed villi, with blood-clot and crystals, without serotina.

The placenta develops best in the lower portion of the tube. The fœtus perishes as the placenta becomes disorganized, and when fœtus and appendages are near the bowel, intestinal gases and micrococci may cause suppuration.

Accidental Hemorrhage.

Swayne (*Bristol Medico-Chirurgical Journal* for September, 1889) reports eleven cases of concealed hemorrhage, in ten of which the fœtus perished. Three mothers died; alcoholism, septicæmia, and nephritis causing death. The abnormal presentations were the feet in two, the head and hand in one. Regarding treatment, three were delivered naturally. Barnes's dilators are often useful; ergot and rupturing the membranes are indicated. Delivery should not be forced, and precautions should be taken against post-partum hemorrhage.

The Treatment of Post-partum Hemorrhage by Iodoform Gauze Tampons.

Graefe (*Berliner klinische Wochenschrift*, No. 41, 1889) reports a case of atonic post-partum hemorrhage treated by intra-uterine tampons of iodoform

gauze. Hemorrhage was immediately checked, but uterine contractions were excited which expelled the tampon, when bleeding recurred. It was finally necessary to tampon the vagina and secure uterine contraction by massage and manual compression. Intermittent relaxation of the uterine muscle and expulsion of the tampon during contraction are thought to explain the failure of the tampon in this case.

Puerperal Mastitis, complicated by Pyæmic Parotitis.

Wenning (*American Journal of Obstetrics* for September, 1889) reports a case of suppurative mastitis occurring three months after labor, in which high fever and parotitis with pyæmia resulted. The patient recovered with free drainage.

Puerperal Infection from Defective Sewerage.

Gustave Braun (*Centralblatt für Gynäkologie*, No. 36, 1889) ascribes a recent mortality in his clinic of 8.97 per cent. to bad sewerage. His wards are in direct communication with the sewerage system of the general hospital, and near the closets of an adjoining barrack. Technical antisepsis had been as faithfully observed as is possible where instruction is given to midwives.

The Treatment of Puerperal Septic Infection by Alcohol.

At a recent meeting of the Berlin Obstetrical Society, Martin (*Centralblatt für Gynäkologie*, No. 31, 1889) reported three cases of puerperal pyæmia and fifteen cases of puerperal septicæmia treated largely by the administration of alcohol in free doses. Thirteen of the patients recovered; three died of septic infection, one of pulmonary œdema, and one of tuberculosis. Half a bottle of cognac, a bottle of champagne, and a bottle of burgundy were often given daily, in addition to milk, eggs, and beef extract. Alcoholic intoxication was not observed.

Gottschalk had treated four severe cases of puerperal septicæmia and one case of puerperal pyæmia with thrombosis and joint inflammations, by alcohol and forced feeding. General peritonitis was present in all the cases. Three of the cases of septicæmia recovered, and the case of pyæmia recovered after two months' illness. In the cases which recovered cocaine was very useful in favoring the retention of food. The duration of the cases was from fourteen days to five weeks. After disinfecting the genital tract the treatment consisted mainly in alcohol and easily digested food; from one to two pints of cognac were given daily, with wine in abundance in addition.

In one of the cases which recovered alcoholic intoxication occurred. The patient became actively delirious, but had a much better pulse. Black coffee was given freely, and an ice-bag put on the head for twenty-four hours. The intoxication was followed by marked improvement in the puerperal symptoms.

Olshausen considered puerperal septicæmia, infection manifesting itself one or two days after labor with rapid pulse and diffuse peritonitis, almost invariably fatal in spite of alcohol. Severe puerperal pyæmia often recovered spontaneously. While alcohol was a valuable agent in treatment, he

was not so confident as others in its efficacy. The majority of cases of puerperal infection tended to recovery.

A Case of Atrophic Pelvis following Infantile Myelitis; and a Case of Atrophic Pelvis following Paralysis of One Extremity.

Blanc (*Archives de Tocologie*, No. 9, 1889) reports for comparison the two cases enumerated above. The pelvis in the former was comparatively large, and maintained in the main a circular contour. The latter pelvis had one normal half, while the other was greatly lessened in its antero-posterior measurement, resembling an obliquely contracted pelvis. Blanc concludes that there exists an atrophic pelvis, as in infantile paralysis, and also an atrophic pelvis caused by paralysis of a lower extremity; the first comparatively simple in contour and causation; the latter resulting from complex forces occasioned by paralysis of a limb and resulting derangement in the mechanism of pelvic development.

GYNECOLOGY.

UNDER THE CHARGE OF

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The Condition of the Corporeal Endometrium in Carcinoma of the Cervix.

Abel and Landon (*Archiv für Gynäkologie*, Bd. xxxv. Heft 2), after making numerous careful microscopical studies, arrive at the conclusion that in cases of cancer of the cervix the corporeal endometrium nearly always undergoes marked changes, which are of a malignant, as well as of an inflammatory, character. The histological structure of the diseased endometrium is often identical with that of round-celled sarcoma, which is to be regarded as the initial stage of cancer metastasis. The practical lesson to be derived from this is that, since in a given case of cancer of the cervix uteri the surgeon is entirely ignorant of the true condition of the corporeal endometrium, he ought not to be satisfied with high amputation, but should remove the entire organ.

[There is another question to be taken into consideration in deciding as to the relative merits of high amputation and complete extirpation in cases of cancer of the portio vaginalis, which is of more importance than the doubtful condition of the corporeal endometrium, and that is the state of the perimetric tissue. Deductions based upon microscopical observations alone can hardly outweigh the well-established clinical fact that recurrence of the disease after high amputation occurs in the majority of the cases at the edges of the former wound, and not within the body of the uterus—it *extends from*

below upward. It should not be forgotten that competent observers have failed to find the changes above described.—ED.]

VENTRO-FIXATION OF THE UTERUS.

F. SPAETH (*Deutsche med. Wochenschrift*, September 12, 1889) discusses this subject at length, reporting fifteen cases in which the operation was performed successfully by Prochownick. He thinks that it is indicated in about seven per cent. of the cases of retro-displacement, *i. e.*, in women with retroflexed and adherent uteri, who still menstruate. Temporary vesical irritation was noted in several cases, but no more than after ordinary laparotomies. The results of ventro-fixation cannot properly be estimated until years have elapsed. Even after a few weeks there may be some tendency to backward displacement, but the most important point is that the patient's symptoms are relieved.

A NEW METHOD OF PERFORMING VAGINAL HYSTERECTOMY.

ZUCKERKANDL (*Wiener med. Presse*, 1889, No. 7) suggests the following method of reaching the internal pelvic viscera through an opening in the perineum: The patient being in the knee-chest position, a transverse incision is made in the perineum, at the outer extremities of which lateral incisions are made, as in the flap-operation (_____/). The fibres of the external sphincter which extend to the commissure are divided, and the lower portion of the vagina is separated from the rectum, the attachments of the levator ani being divided on each side. The rectum is drawn backward, and the wound is opened up as high as Douglas's pouch, the posterior fold of peritoneum then being incised. Through this opening the fundus uteri is grasped, and the organ is retroverted. The broad ligaments are tied in sections, the bladder is dissected off, and finally the vaginal attachments are separated. The stumps of the broad ligaments may be returned to the cavity, the peritoneal wound being closed by sutures, or they may be stitched into the vaginal wound.

The writer claims that by this method the whole of the broad ligaments may be inspected before the ligatures are applied, and that the ureters may be seen and avoided, while the posterior vaginal wall is uninjured.

[We can hardly conceive what advantage is to be gained by complicating this operation through the addition of an extensive wound in the perineum. Any one who has tried to separate the bladder from the uterus from the peritoneal side, will appreciate the difficulties of the procedure, and the impracticable nature of the entire operation.—ED.]

THE TREATMENT OF MALIGNANT TUMORS OF THE OVARY.

FREUND's paper on this subject (*Zeitschrift für Geburtshülfe u. Gynäkologie*, Band xvii., Heft 1) is based upon his experience in seventeen cases in which the malignant neoplasm was localized in the ovaries, and eight in which the peritoneum was also affected. He lays considerable stress upon the presence of hydrothorax as evidence of malignancy of the tumor; this was noted in ten cases, in only one of which it could be ascribed to actual metastatic disease of the pleura. This hydrothorax is no counter-indication to laparotomy; in

fact, the fluid rapidly disappears after the operation. This effusion accompanies papillomata of the ovaries, as well as carcinomata and sarcomata.

In three cases the umbilicus was the seat of cancer, thus rendering the diagnosis easy. Secondary growths on the adjacent peritoneum are not true metastases, but represent rather a sort of implantation of the original neoplasm; this distinction is of great importance clinically, since secondary tumors around the uterus do not contra-indicate operative interference—an opinion directly opposed to that expressed by Schröder. This applies to all varieties of malignant neoplasms of the ovaries.

With regard to the propriety of operating in these cases, the writer insists upon the similar course of malignant disease of the pelvic organs and that of the breast or extremities; the patient may live for years, so long as the functions of the important viscera are not disturbed. Even when the latter are affected, the surgeon may prolong life by removing ascitic and pleuritic effusions, breaking up intestinal adhesions, etc. Laparotomy is preferable to puncture in the treatment of cancerous ascites, as in that due to tuberculosis, because not only can the fluid not be entirely withdrawn by the aspirator, but there is more danger of hemorrhage and collapse. If fluid remains in the cavity, it irritates the peritoneum, and thus leads to fresh effusion. No one should attempt to remove these malignant growths who is not competent to treat all the formidable complications which arise in abdominal surgery, including resection of the intestine. The after-treatment of these cases requires unusual care. There is no more reason to fear septic peritonitis than there is after a simple ovariotomy.

The writer's results were very favorable, since he lost only one patient from pulmonary embolism.

The Diagnosis and Treatment of Parovarian Cysts.

Wykowska (*Centralblatt für Gynäkologie*, October 12, 1889), from an analysis of seventeen cases, finds that there are wide differences in the anatomical structure and contents of these cysts; in only two cases did the fluid contain ciliated epithelia. In one-half of the cases circumscribed peritonitis was present. He recommends puncture *per vaginam* in preference to removal by laparotomy, but acknowledges that the diagnosis is often doubtful.

[We have quoted this article only to express disapproval of the palliative treatment advised, which is opposed to that which is generally accepted.—Ed.]

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THE BEST ANTISEPTIC.

FOR BOTH INTERNAL AND EXTERNAL USE.

LISTERINE.

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